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ABSTRACT

This monograph examines the apprenticeship system, especially in electrical and motor vehicle repair work, from two different approaches. A general introduction discusses the choice of industries and apprentices used as a basis for both studies. The exploratory study in Part 1 concentrated on attitudes and perspectives of the participants in the apprenticeship system. Chapter 1 discusses the study's nature and aims. Chapter 2 focuses on entry into apprenticeship and attitudes toward trade and work. Chapter 3 discusses attitudes toward training and education. Chapter 4 concentrates on apprentice's view of future prospects. Chapter 5 deals with the questions of the breadth of skill acquired and levels of skill within trades. Chapter 6 focuses on views of education and training held by other participants. Part 2 reports objective analyses of apprenticeship. Chapter 7 defines the problem--identifying factors contributing to success in apprenticeship. Chapter 8 describes the measurement of first and final year success. Chapter 9 concerns factors associated with changes of employment during the four years after commencement of an apprentice. Chapter 10 is a postscript to the study. Appendixes include a questionnaire for first year apprentices. (YLB)

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GETTING A TRADE

A Study of Apprentices' Experience of Apprenticeship

RYRIE and WEIR

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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PREFACE

This book is the outcome of a project on craft apprenticeship carried out by the Scottish Council for Research in Education. The project involved a longitudinal study, over four years, of apprentices entering various engineering trades, particularly in electrical and motor vehicle repair work. While studies of that type have been conducted in the past, the intention in this case was to examine the apprenticeship system from different research perspectives and by different methods.

The outcome of these differences is a book in two parts, each representing a different approach. The first part, largely the responsibility of A C Ryrie, is descriptive and examines the apprenticeship system through the eyes of apprentices, employers and other participants. The second part, the responsibility of A D Weir, is based on statistical analyses of a large body of diverse data and is designed to search out the factors making for success in apprenticeship. It is intended that both parts will be of interest to the general reader. For the assistance of any reader unfamiliar with the statistical techniques used in the second part there are extensive explanations in the text and numerous conclusions at the end of each chapter. Thus in spite of the technicality of this part it is hoped that readers will persist and follow the argument of both parts. Nevertheless, it may be that some readers will be more interested in one approach than in the other and, for this reason, the book has been presented in such a way that each part can be read on its own. Summaries are included at the end of each chapter.

In presenting the book we would like to express our thanks first of all to the apprentices who co-operated with our project over a period of years, and to officials and staff of training centres, further education colleges, employing firms, and a variety of other bodies who gave us facilities and assisted with our enquiries. In particular we must mention the South of Scotland Electricity Board and the Lanarkshire Automobile Group Training Association, with whose support the study was initiated. Our thanks are also due to a number of other people who have assisted in the preparation of the book for publication: Betty Smail, Ray Ramsay and Morag Bannerman did the typing; Evelyn Steel, Information Officer of the SCRE, helped to prepare the text for printing; John Powell, Assistant Director of the SCRE, read the text and gave valuable advice. Special mention must be made of Bet Gordon who served as Technical Assistant throughout the period of the project and without whose careful and painstaking work the project could not have been completed at all.

A C R
A D W

GENERAL INTRODUCTION

Apprenticeship as a means by which young people learn the skills of a particular craft is an ancient institution in Britain. It dates from the time when the sons of manual workers received little or no schooling and apprenticeship provided an important means of education in the broad sense. Its unique characteristic as a form of education was that it combined employment with education: young people were engaged in the practical work of their employer as they learned their trade.

Apprenticeship, however, has never been simply a means for teaching young people a skilled craft. It has also always been a complex labour market institution, through which the entry into skilled trades was regulated and controlled, and contractual obligations were entered into by employers, young persons and sometimes their parents. Thus over the years a body of traditions, customs and practices came to be applied to the operation of apprenticeship schemes, representing and safeguarding the interests of employers and skilled workers. As frequently happens, such traditional arrangements may become outdated and irrelevant, and while some of them lapse or are ignored or replaced, others continue in force beyond the period of their relevance or usefulness.

The effect of the persistence of such traditional practices in the case of apprenticeship has been to cast doubt upon its value as a means of educating or training young people for skilled work. For decades writers and commentators have drawn attention to the inadequacy of the apprenticeship system from the point of view of training. Indeed as long ago as the close of the last century Sidney and Beatrice Webb examined the operation of the system in British industry and concluded that it was unlikely to survive:

> "Over by far the largest part of the limited field in which apprenticeship once prevailed, the system has gone practically out of use. Undemocratic in its scope, unscientific in its educational methods, and fundamentally unsound in its financial aspects, the apprenticeship system, in spite of all the practical arguments in its favour, is not likely to be deliberately revived in a modern democracy."[1]

Nevertheless, apprenticeship has not only survived but has remained the established means of entry into skilled trades up to the present

[1] Webb (1913), pp 476, 481.

time. By the middle of the century, however, there was a growing awareness that the traditional apprenticeship system was not providing the type and quality of training required for skilled work in modern industry. Two significant publications, in particular, Gertrude Williams' *Recruitment to Skilled Trades* (1957) and Kate Liepmann's *Apprenticeship: An enquiry into its Adequacy under Modern Conditions* (1960) drew attention to the deficiencies of the system from the point of view of the training needs of industry. Shortly thereafter, following an official report and a White Paper,[2] the Industrial Training Act of 1964 opened the way to considerable changes in the whole field of industrial training.

As a result, partly of this Act and partly of a widespread general awareness that training needed to be improved, there have been significant developments in the field of apprentice training. The Industrial Training Boards set up under the Act have brought pressure to bear on companies to provide more and better training, have issued training programmes, organised courses, and sponsored research in the field of training. At the same time there has been an increased recognition of the value of off-the-job training, and company or group training centres for apprentices have been established in many industries. And along with this has come an increased emphasis on further education as part of apprenticeship, and more apprentices have been granted day-release or block-release to attend a technical college. In this way the arrangements by which apprentices learn their trade have been more systematised and have been linked with the formal education system.

Meanwhile the continued importance of apprenticeship is indicated by the fact that the proportion of boy school-leavers entering apprenticeships has tended to increase rather than decrease. In the years 1965-1975 that proportion has usually been over 40 per cent, whereas before 1965 it was usually around 35 per cent. Over 100,000 boys and over 15,000 girls enter apprenticeships every year. In Scotland and the north of England the numbers have been particularly high—usually between 45 and 50 per cent of boy school-leavers.[3] There is also evidence that the demand for apprenticeships among young male school leavers remains high, although there are some variations between different parts of the United Kingdom.[4]

All this indicates that apprenticeship continues to be an important

[2] National Joint Advisory Council (1957); Ministry of Labour (1962).
[3] Figures from *Department of Employment Gazette*.
[4] Schools Council (1968), p 141. See also Carter (1962), p 95.

institution. It is, as we have said, a complex social institution which has to do with employment as well as training and education. It is an institution within the labour market, regulating entry into skilled trades, and governed in the traditional skilled industries by Joint Apprenticeship Schemes agreed by employers and trade unions. At the same time it is an institution by which young people are trained and prepared for the work of skilled trades. Thus apprenticeship clearly merits the attention of researchers interested in the fields of employment, training, education or social institutions. Research into subjects connected with apprenticeship has indeed been considerably developed in recent years. This research has, however, been mainly concerned with particular aspects of the apprenticeship system. These include methods of selection of suitable apprentices; the efficacy of various training methods, programmes and procedures; and further education.[5] There has also been a body of research connected with careers guidance, occupational choice and entry into work, and a certain amount of labour market research which bears on apprenticeship. Little attention has, however, been paid to craft apprenticeship as a total system. The present volume is aimed at partially remedying that deficiency by including in its subject matter not only questions of training or questions of employment but the whole process of apprenticeship.

The widespread and varied character of apprenticeship, however, makes it difficult to examine the operation of the system as it exists in industry throughout the country. So instead of attempting this it was decided to conduct case studies concentrating on limited groups of apprentices in selected industries and localities, and following them through the period of their apprenticeship. This would give the opportunity of carrying out two parallel longitudinal enquiries, each of them based on aspects of the operation of the apprenticeship process as a whole. The first enquiry was designed to look in detail at the characteristics of apprentices entering the industries concerned, and to assess their degree of success in apprenticeship, taking account of different types of education and training programmes and of different employment situations. This research is described in Part II of this volume. The second enquiry was designed to concentrate on the attitudes and perspectives of the participants in the apprenticeship system—to look at apprenticeship from within; and it is this study which is described in Part I. Before we embark on a more detailed description of the two studies a few

[5] Details of such research can be found in the annual *Training Research Register* compiled by the Training Services Agency.

words should be included here about the choice of industries and apprentices used as a basis for both.

The choice of the sample of apprentices was governed by various considerations. It was decided to concentrate on apprentices in two groups of trades which could be classified together in terms of education and training programmes. This would allow comparisons to be made between the two. The trade groupings concerned should be ones in which significant numbers of apprentices attended off-the-job training centres of different types, and others attended further education courses without doing off-the-job training. For practical purposes it was necessary that the colleges, training centres and places of employment should not be too far separated within the Central Scotland area, and that the sample chosen should meet the needs of both of the parallel studies which were being undertaken. With these considerations in mind it was decided to choose one group of apprentices entering the motor vehicle repair trades, and another group entering engineering trades. The first group consisted of apprentices entering the motor vehicle repair trades in Lanarkshire, and it included all boys starting first-year training in 1972 at one large group training centre (the Lanarkshire Automobile Group Training Association—LAGTA) or one of two smaller company training centres; together with all apprentices not already included who enrolled at the same time in first-year day-release classes in automobile engineering at two technical colleges in the county. The other group consisted of apprentices entering various engineering trades in Stirlingshire or neighbouring areas and included all boys commencing training for these trades in 1972 in the large training centre of the South of Scotland Electricity Board (SSEB), a foundry industry group training centre with a certain number of engineering apprentices, a small company training centre, and an off-the-job training unit within a technical college; together with all other apprentices not already included who enrolled at the same time in craft-level courses in mechanical or electrical engineering at the local technical college. This gave the following numbers:

Motor Vehicle Group		*Engineering Group*	
LAGTA	86	SSEB	74
Other training centres (OTC)	47	Other training centres (OTC)	71
No training centre but attending college (NTC)	60	No training centre but attending college (NTC)	50
Total	193	Total	195

For the purposes of the study of the characteristics of apprentices and the factors contributing to success in apprenticeship, reported in Part II, this total sample was used. For the exploratory study of the apprenticeship process from the viewpoint of participants described in Part I, a smaller sub-sample of these selected apprentices was used. The nature and methods of the two parallel enquiries in relation to these apprentices will be described more fully in the two respective Parts of this volume, to which we can now turn.

PART I: APPRENTICESHIP FROM WITHIN

1

NATURE AND AIMS OF THE STUDY

The aim of this study is to ascertain the goals and objectives of selected groups of apprentices and their attitudes to employment, training and education; at the same time to examine the attitudes and perspectives of others involved in the process; and in the light of this to assess the operation of the system in the different trades and industries and identify some of the significant issues and problems. Such a study is frankly exploratory in nature. It is not intended to test hypotheses or to make an evaluation of the apprenticeship process by any objective criterion. Even an exploratory study, however, is based upon certain assumptions about the nature of apprenticeship and the aspects of it which are worth exploring. Such assumptions will determine both the methods and the subject matter of the study. To make these assumptions clear it will be useful to start with a definition of apprenticeship.

For the purposes of this study apprenticeship may be defined as: a method of training by which young people are attached to an employer for a period of years, as an exclusive means of entry into a particular trade.[1] From this a number of things follow, the first of which has to do with the general approach and methods of our study. From the definition it follows that a variety of people in different positions are involved in the apprenticeship process. For our purpose these include: the apprentices themselves; people concerned with formal training and education—the staff of apprentice training centres and technical colleges and officials of industrial training boards; employers and the officials of employers' organisations responsible for administering apprenticeship schemes and agreements under which apprentices are employed; officials of trade

[1] The definition is based on one put forward by Singer and Macdonald (1970), p 10, but has been further elaborated.

unions which are also parties to such agreements. The understanding on which this research is based is that apprenticeship at the local level exists because of, and takes its character from, the attitudes, intentions and actions of these various participants.[2] As with other institutions or organisations in society it can be seen as serving the needs or interests of different people or parties in a variety of ways. In this case the principal parties on whom apprenticeship depends are the employers and the apprentices themselves. We can assume that employers must see it to be in their interest to engage apprentices, and young people must see it as consistent with their own goals and intentions to undertake an apprenticeship. Part of this study, then, will be concerned to try and discover what the objectives, goals and attitudes of apprentices and employers are, so that we can understand better why the apprenticeship system continues at all.

Also important for this study is the belief that one method of assessing the operation of a thing like the apprenticeship system is to consult the various types of people involved in it. Clearly this is not the only method. In recent years it has been common to assess the 'adequacy' of apprenticeship by the criterion of the requirements of industry and the nation for skilled manpower, or by objective measurements of the efficiency of training. In this study, however, we are concerned neither with national manpower needs nor with the objective efficiency of various training methods and procedures, but with the adequacy of the apprenticeship system from the point of view of the participants. This may allow issues and problems to emerge which are not seen from the outside, or allow existing questions to be seen in a different light.

A second thing to note in the definition is that apprenticeship involves attachment to an employer and entry into a particular trade. It is, therefore, important to take the employment aspect into account in any study of apprenticeship. In this connection we have to recognise that apprenticeship is not one homogeneous institution. It exists in various industries, trades and types of employment, and the way in which it is organised and the attitudes of those involved may vary accordingly. Hence it will be important to include a certain variety of industries, trades and types of employment in the study. The employment aspect of apprenticeship also makes it important to examine the attitudes both of employers and

[2] This is in line with a type of sociological theory which sees social reality and the organisation of institutions of society as 'constructed' by the participants (or 'actors') within society. See in particular Berger and Luckmann (1967).

apprentices to the work which apprentices do in their employment. As far as the apprentices are concerned this will be particularly useful because apprenticeship provides one important avenue by which young people enter work. As has already been said, considerable interest has arisen in recent years in questions and problems connected with school leaving and entry into work. There have, however, been few attempts to discover how young people fare in particular types of employment and what their attitudes are to particular kinds of work once they are employed. A study of apprenticeship from the point of view of the participants will provide an opportunity to examine the attitudes of apprentices to their work, and the importance to them of having a skilled trade.

In the third place, apprenticeship is defined as a method of training. We have already drawn attention to the changes that have been taking place in the field of apprentice training in recent years. It is not the purpose of this study to discuss the details of training methods or procedures, but rather to try to discover what the attitudes both of the apprentices and of the other participants are towards the main aspects of training and education, and what problems seem to arise. It will also be important to recognise that there are different ways of organising a programme of education and training, and to take account of the attitudes of apprentices undergoing different kinds of programmes.

Finally, the definition of apprenticeship recognises that it involves young people for a period of years. In most industries apprenticeships have to be commenced at the age of sixteen, and nowadays the apprenticeship period is usually one of four years. It is expected that during this period the apprentices will grow in knowledge, skill, experience and maturity. They will undergo progressively advanced training programmes and be required to do progressively advanced work. Apprenticeship is, in other words, a process. It will be important for our study, therefore, to take account of this period of years and this process of development. We will want to follow the groups of apprentices in different trades, industries and types of employment, undergoing different programmes of education and training, from the time when they commence their apprenticeship until they have served their four years.

The study described here is therefore a longitudinal one, involving contact over a period of years with particular groups of apprentices and other participants in the apprenticeship system in particular industries, with a view to discovering their attitudes to both the employment and the training aspects of apprenticeship. In carrying

out the study we have addressed ourselves to the following general questions:

(a) What are the goals and objectives of the apprentices as they go through the apprenticeship process, and are they being achieved?
(b) Are the programmes of training and education undergone by apprentices experienced by participants as useful and appropriate and sufficiently unified?
(c) Do the arrangements for the employment of apprentices, and also the allocation of work to them, fit in with the goals, interests and needs of apprentices and employers?
(d) Is there evidence of significant differences in the way apprenticeship operates in different industries, trades and establishments?
(e) Does an understanding of the goals and objectives of participants contribute towards an explanation of why apprenticeship has persisted as a social institution to the present day?

For the purposes of this exploratory study a random sample of half the apprentices in each training sub-group of the original total sample (see page xi) was selected.[3]

This gave the following numbers:

Motor Vehicle Group		*Engineering Group*	
LAGTA	42	SSEB	37
OTC	19	OTC	32
NTC	29	NTC	23
Total	90	Total	92

The motor vehicle group was a more homogeneous one in terms of the types of employment of the apprentices, since they all worked in motor repair workshops of some description. This group can, however, be divided by type of work done in the workshop, as is shown in Table 1. It will also be seen from the Table that most of the apprentices (73 out of 90) in this group were training to be motor mechanics, but that there were a few auto-electricians, body-shop apprentices (panel beaters and spray painters), plant fitters and partsmen. The engineering group was more varied in the types of employment represented. The largest single group were employed by the SSEB, but these were divided into 'Generation' apprentices, who would be going to work in power stations, and 'Distribution'

[3] More precisely, a 50% sample was drawn from those remaining after the first month, during which time a few had dropped out.

TABLE 1

TRADES AND TYPES OF EMPLOYMENT OF APPRENTICES

Motor Vehicle Group

Type of Workshop	No. of Establishments	No. of Apprentices in various trades					Total Apprentices
		Motor Mechanic	Auto Electrician	Body	Parts	Plant Fitting	
Small, light vehicle	18	23	1	1	—	—	25
Large, light vehicle	8	19	2	2	1	—	24
Large, mixed	6	19	—	—	3	—	22
Heavy vehicle	13	12	1	1	—	—	14
Plant Fitting	4	—	—	—	—	5	5
Total	49	73	4	4	4	5	99

Engineering Group

Type of Establishment	No. of Establishments	No. of Apprentices in various trades					Total Apprentices
		Electrician	Electrical Fitter	Instrument Mechanic	Mechanical Engineering	Fabrication Engineering	
SSEB Generation	7	—	7	5	6	—	19*
SSEB Distribution	10	18	—	—	—	—	18
Electrical contractors	7	8	—	—	—	—	8
Building contractors	4	8	—	—	—	—	8
Foundries (maintenance)	7	2	—	—	7	1	10
Factories (maintenance)	9	5	—	3	12	—	20
Production engineering	5	1	—	—	3	2	6
Structural engineering	3	—	—	—	—	3	3
Total	52	42	7	8	28	6	92*

* One SSEB Generation apprentice dropped out before he was allocated to a particular trade.

TABLE 2

FATHERS' OCCUPATIONS

Motor Vehicle Group

	Professional, Managerial	Supervisors, Clerical, Technicians	Time-Served Craftsmen	Self-Employed	Semi-Skilled	Unskilled	Not working: Deceased	Total
LAGTA	2	6	12	3	18	1	—	42
OTC	2	2	4	1	7	1	2	19
NTC	1	3	3	5	14	2	1	29
All	5	11	19	9	39	4	3	90

Engineering Group

	Professional, Managerial	Supervisors, Clerical, Technicians	Time-Served Craftsmen	Self-Employed	Semi-Skilled	Unskilled	Not working: Deceased	Total
SSEB	6	6	8	2	13	1	1	37
OTC	3	9	5	1	11	3	—	32
NTC	—	—	5	1	11	6	—	23
All	9	15	18	4	35	10	1	92

apprentices who would be going to work in the Board's distribution districts. Others were employed by electrical or building contractors as electricians. Others again were involved in mechanical or electrical maintenance work in a variety of foundries and factories, and a few belonged to small production engineering or structural firms. The establishments themselves varied in size, from small High Street electrical contractors employing five or six people to branches of

TABLE 3

NUMBER OF SCE O-GRADES ATTEMPTED

Motor Vehicle Group

	None	1-3	4-6	7+	Total
LAGTA	30	1	10	1	42
OTC	12	1	6	—	19
NTC	26	—	2	1	29
All	68	2	18	2	90

Engineering Group

	None	1-3	4-6	7+	Total
SSEB	10	2	16	9	37
OTC	8	4	11	9	32
NTC	12	3	4	4	23
All	30	9	31	22	92

international firms and nationalised industries. The engineering group were also more varied in the trades they were entering. More than half were in electrical engineering of different types, but there were a good number of mechanical engineers and a few entering fabrication trades—welders, coppersmiths and boilermakers.

Two other pieces of background information about the two groups of apprentices are worth including here. The first concerns their fathers' occupations, and is shown in Table 2. From the table it is clear that there was no great difference between the two groups in this respect. Most of the fathers were semi-skilled or skilled manual workers, though there were also several clerical workers, supervisors and technical staff of various kinds. There were very few sons of unskilled workers, except amongst the no-training-centre apprentices in the engineering group.

The other point has to do with the apprentices' progress at school. Table 3 gives the number of SCE O-grade examinations which they sat. This shows the level of course they had been allocated to during their secondary schooling, and thus gives an indication of how they were rated or assessed by their schools. It will be seen that over two-thirds of the motor group but less than one-third of the engineering group left school having attempted no O-grade examinations. Most of these boys left when they were fifteen. Many more of the engineering apprentices had sat quite a number of O-grades. Thus the engineering boys as a whole appear to have done considerably better at school than the motor boys.

Such then, was our sample of apprentices. All of these were interviewed within the first six months of starting their apprenticeship, and again in their second and third years. The interviews were conducted at training centres or further education colleges, or, in the case of a few who were no longer attending any such institutions, at their place of work. During the apprentices' fourth year contact was difficult as many were no longer involved in off-the-job training or further education, and consequently we conducted only a very limited enquiry. In the case of the motor vehicle apprentices this was done by brief personal contact at their place of work; and with the engineering apprentices by means of a short mailed questionnaire. Inevitably the number of apprentices declined over the period because a few dropped out of their apprenticeship. Wherever possible we followed up those who did so, to ascertain both their reasons for dropping out, and their subsequent employment. The numbers interviewed each year are indicated in Table 4.

As well as interviewing the apprentices we also called at the various places where they worked to interview the person in the firm or establishment who had overall responsibility for apprentices. In large firms in the engineering study this was usually a personnel or training officer, or a manager specially chosen to have oversight over apprentices. In small firms it was the works manager, the general manager, or the owner (in the case of a very small business). In garages it was usually the service manager or fleet engineer. We interviewed 49 such 'employers' (as we shall call them all) in the motor study, and 48 in the engineering study.[4] The interviews with the motor employers took place early in the course of the research,

[4] In two of the 52 establishments in the engineering study the employers were not available, and in two other cases the only apprentice in our sample had dropped out some time before our visits to employers.

with the result that some issues which only emerged, or came to our attention, later on were not discussed with them.

During the later part of the research we interviewed the instructors in the training centres which our apprentices had attended. These numbered nine in the motor study and 20 in the engineering study. We also interviewed those teachers at the technical colleges who

TABLE 4

NUMBERS REMAINING IN INTERVIEW SAMPLE IN DIFFERENT YEARS

Motor Vehicle Group

	First Interview	Second Interview	Third Interview	Fourth Year Enquiry
LAGTA	42	42	38	31
OTC	19	17	12	9
NTC	29	27	21	14
All MV	90	86	71	54

Engineering Group

	First Interview	Second Interview	Third Interview	Fourth Year Enquiry
SSEB	37	34	33	25
OTC	32	32	30	29
NTC	23	21	18	11
All EN	92	87	81	65

had had the main responsibility for teaching the large body of our apprentices. These numbered eight in the engineering study and nine in the motor study. Finally, we paid visits to the offices of other organisations which had responsibility in connection with aspects of the apprenticeship system in the trades and industries we were concerned with. We had interviews with representatives of the Engineering Industry Training Board, the Construction Industry Training Board, the Road Transport Industry Training Board, the Scottish Motor Trade Association, the Electrical Contractors' Association of Scotland, the Amalgamated Union of Engineering Workers, and the Electrical, Electronic, Telecommunications and Plumbing Union.

Given our general objective of discovering and understanding the attitudes and perspectives of the various participants in the apprenticeship process, the interviews we conducted with all these people were of a broad exploratory nature. While we had a schedule of questions to guide the interview, in each case respondents were encouraged to give their opinions freely and to discuss the issues. We subsequently carried out a rough numerical analysis of the responses to show the spread of opinion on various topics. This allowed us to make comparisons between different groups and to observe changes in the overall pattern of the apprentices' attitudes from year to year. But in addition we made an intensive study of the words and concepts used by the respondents, so as to achieve a better understanding of their manner of thinking, of the detail of their thought, and of the weight attached to various opinions—things which become obscured by quantification. In the account which follows, therefore, we include a few figures, percentages and tables to help the reader to grasp the overall picture, but we do not attempt any sophisticated statistical analysis. This would be inappropriate with interview responses of this type. Instead we attempt to fill out the numerical outline with discussion of the concepts and ideas used by the respondents, frequently giving quotations from their own words. It will be seen that in a number of cases we were interested in problems or issues raised by only a minority of the respondents.

It will be clear from this account of our method that what follows will be an individual interpretation of the attitudes of the participants in the apprenticeship process. It does not represent an objective assessment or measurement of factors involved in apprenticeship but rather one person's understanding of the process and the issues involved as they became apparent to him in the course of these particular studies. The remaining chapters of Part I are divided into two sections. Section A offers a description of the attitudes of the apprentices themselves, taking account of differences between the two groups and between groups undergoing different training programmes, and taking account also of the development of attitudes during the period of apprenticeship. No attempt is made to present a systematic account of the views and attitudes of other participants, but these views are included in Section B, in which there is a discussion of issues and problems of the apprenticeship system, as these emerged from our studies.

SECTION A

THE ATTITUDES OF THE APPRENTICES

The purpose of this section is to present an account of the views, attitudes and intentions of the apprentices as these were revealed during a series of interviews.

The theory on which this account will be based is that apprentices' attitudes are best understood and explained as part of, or derivations of, the overall goals or objectives with which the apprenticeship is pursued. In other words, it will be assumed that lads who undertake an apprenticeship lasting a period of years will see this as serving certain purposes for them. These purposes may or may not be clearly formulated in their minds. They may or may not be consistently related to the objective characteristics and conditions of the apprenticeship system as it exists today. Nevertheless, these underlying objectives will be the basis or source of the attitudes which the apprentices adopt to a variety of matters connected with their training, education and work. Conversely, the apprentices' attitudes will be most easily understood and interpreted by reference to these overall goals or objectives. Such, at any rate, is our theory.

It is an important part of the method implied in this theory that these objectives should not be defined or determined *a priori* from outside the interview responses, but that they should be identified within what the apprentices themselves had to say. In other words, the key to understanding the data is to be sought within the data themselves. In spite of the apparent circularity of this approach it can be held to yield a more valid interpretation of the attitudes of the apprentices than one which uses an externally derived or *a priori* framework. The method adopted, then, was to scrutinise and reflect on the responses as a whole to discover whether any main goals or objectives seemed to emerge. On doing this it became clear that there were certain threads or strands which ran through the whole series of interviews, and in the light of which the attitudes of the apprentices on many particular points seemed to make sense. What these main objectives were will become clear at an early

stage in our discussion. In keeping with the approach outlined here we will not discuss them at this point but will draw attention to them as they emerge, and we will then interpret the apprentices' attitudes in the light of them as we proceed.

The subject matter of this section is divided into three parts. First of all, in Chapter 2, we look at the entry of the boys into their apprenticeship and their attitudes to their trade and work. Secondly, in Chapter 3, we discuss what the apprentices thought about their training and education. And finally, in Chapter 4, we consider the apprentices' view of their own future prospects.

2

INTO WORK

We start our account of the attitudes of the apprentices by considering how they came to embark on their apprenticeship; what their views were of the work of the trade which they were learning, and what their motives or intentions were in pursuing their apprentice training.

Choice of Trade

Bearing in mind that 'choice' of trade may be either deliberate and purposeful or haphazard and adventitious,[1] we wanted to discover first of all how it was that our apprentices found themselves in their present apprenticeship. So the first interview started by our asking the boys what they had wanted to do on leaving school, and how they had gone about finding a job. The replies revealed at once a difference between the motor vehicle and the engineering apprentices. About half of the motor vehicle boys (48%) said they had left school with the clear idea of becoming motor mechanics; whereas only about a quarter (26%) of the engineering group had had a clear idea of one trade they wished to enter. From the boys' own accounts, therefore, it appears that the engineering apprentices were on the whole the more open-minded when they left school, whereas the motor group were the more committed at an early stage.

We could not, however, be sure that the boys' recollection of their intentions at a previous period were accurate. To find out more about this, therefore, we compared the responses we had received from the boys with the Careers Office records, where available, of the boys' interview with a Careers Officer before they had left school. From this it emerged that there was little discrepancy between what

[1] A distinction to be found in Sherlock and Cohen (1965).

the boys said to us and what they were recorded as having indicated to the Careers Officer. Overall the picture remained unchanged; the boys who entered engineering were less committed at the time of leaving school to one particular trade they wished to enter. However in each group there were some who had had no idea of what they wanted to do after school, as well as some who had had a very clear idea. We will want to observe whether as time went on these initial differences in the boys' intentions bore any relation to their subsequent attitude to their trade, their work and their future.

The difference between the two groups in their initial choice of trade is further indicated by their response to a question about what influenced them in their choice of trade. Table 5 shows that the very large majority of the motor vehicle apprentices were either influenced in their choice by their own practical experience of working on cars (their fathers', or brothers' or friends') or else were aware of no influence at all. As a number of them said:

TABLE 5

PERCEIVED INFLUENCE ON CHOICE OF TRADE

	MV		EN	
	N	%	N	%
Practical experience	42	48	11	12
Studies at school or college	7	8	33	36
Other people	12	14	23	25
No remembered influence	33	38	25	27
Totals	94	108*	92	100

* Four MV apprentices gave two responses each.

"It was just my own idea." Few of them were aware of having been influenced by other people and where they were it was usually by friends or brothers, not by parents or teachers. Even fewer were consciously influenced by anything they had studied at school or college. With the engineering apprentices, however, the position was reversed. Studies at school or college was the largest single perceived source of influence, and the influence of other people including parents and teachers was also recognised by a quarter of the boys, while practical experience was felt to play only a small part.

Taken together with the previous replies, these figures show an important difference between the attitudes and motives of the two

groups of apprentices at the start. Typically, the motor vehicle apprentices came into their apprenticeship with a more personal and single-minded interest in working with cars or engines. Their level of schooling was, as we saw earlier, on the whole somewhat lower than that of the engineering apprentices, and they were relatively uninfluenced either by school or by older advisers. They were pursuing their own interest in motor mechanics, sometimes in spite of the advice of elders. The following are typical statements:

"I wanted to be a motor mechanic since I was at primary school. But I also helped a boy with his car. No one recommended it. My uncle, who's a haulage contractor, said it was a bad trade—the muck and that."

"It was my own conclusion. My parents wanted me to sit O-levels. . . . I like motors. I've always been a fanatic since I was wee. I helped my father and brother with their cars."

"I wanted to be a motor mechanic . . . I wasn't influenced by anyone. My ideas came from my own mind, not my parents."

The engineering apprentices, on the other hand, were less personally interested in or committed to one trade. Most of them had had more schooling than the motor vehicle boys, and had been open to the influence of school and the advice of older people. Typical statements of this position include:

"I didn't have a clear mind. But my father said it was better to be an engineer because there will always be jobs for engineers."

"I wanted something on the practical side. I thought of engineering or electrician."

"We did a lot of physics in our second year at school. We had a good teacher. That made me interested in electricity."

Now that they had embarked upon their apprenticeship, however, did they feel they had made the right choice and were now in the most suitable trade for them? A few of the apprentices in the first year (17% MV; 22% EN) said the trade they most wanted to enter was different from the one they were in fact entering. Most boys in both groups, however, felt they had secured entry into the trade they most desired, and few of them changed their view on this point during the course of their apprenticeship. It would appear that there was, rather, a tendency in the opposite direction, namely, to rationalise and accept what they had got, even if it was not their

first choice.[2] This was seen particularly amongst the engineering apprentices; of the 20 who indicated in the first year that they were not in their originally preferred trade, 12 said in the second year that they now thought it was the best trade for them. Amongst the motor vehicle group there was some movement in both directions: seven out of ten who were originally doubtful felt later that they had entered the right trade; while seven out of 65 who originally regarded the motor trade as their first choice later thought they would have been better in something else. The important thing to

TABLE 6

REASONS FOR REGARDING A TRADE AS IMPORTANT (FIRST INTERVIEW)

	MV		EN	
	%	N	%	N
Trade-security	77	69	80	74
Money	19	17	31	28
Skill, type of work, knowledge	14	13	24	22
Job-security	16	14	13	12
Prospects	7	6	9	8
No real advantage	6	5	2	2

(Totals are more than 100 per cent because some respondents gave more than one reply)

note, however, is that these responses bear little relation either to the presence or absence of a clear intention when they left school, or (as we shall see) to their intention to stay in or leave the trade later on. Apparently the large majority in both groups, having started an apprenticeship, were inclined to hold to the view that they had made the right decision, regardless either of their original desires or of their long term future intentions. We shall return to this point when we come to consider their future intentions.

The tendency to settle for what they had got even if it was not their first choice was probably influenced by the boys' views of the importance of getting a trade of some kind, and therefore of settling down to serve their time. In the first interview only a very small number (9, MV; 7, EN) said they had not been very much concerned whether the job they got was an apprenticeship or some other kind of job. The others all felt, with varying degrees of emphasis, that getting a trade was important for them. Similarly, enquiry as to the

[2] Roberts (1974) draws attention to the prevalence of this tendency.

reasons for wanting a trade brought a remarkable unanimity of response.

The large majority (77% MV; 80% EN) believed that a trade was important for reasons of future security or job-opportunities. What they had in mind is seen from the form of their replies. Over and over again the same phrases were repeated:

"It's something to fall back on";

"You've always got it behind you";

"You can get a job more easily if you've got a trade";

"You can take a job anywhere."

Further enquiry revealed their meaning more clearly. It was not that they thought that a tradesman had any more security against redundancy than other workers; most of them felt he could lose his job just as easily. But having a trade provided a particular kind of security: not *job*-security in the sense of a job that will not fold up; but *trade*-security, or the opportunity provided by having a recognised skill of transferring from one employer to another. This would ensure that if they were made redundant, or if they wished to change jobs for any reason, they could more easily find another one. They could even take a job outside their trade and if times were hard they could "fall back on their trade," because "you always have it behind you."

The frequent use of conventional stereotyped phrases in the apprentices' replies on this point suggests that they were giving expression to something which is commonly believed and understood, and which they had learned and accepted from others. This is further indicated by the fact that, when asked if anyone had influenced them to think that a trade was important, a very large proportion of them (80% MV; 85% EN) referred to parents:

"My parents said a trade was important for security."

"It was really my parents that made me go for it."

"My parents said better get a trade because of the way unemployment is going just now."

Or more bluntly:

"My mother said: 'Get a trade or I'll kill you!'."

Perhaps it was because they had taken over the idea of the importance of a trade from parents or others uncritically that a certain number of the apprentices began to change their minds as time

went on. By the second interviews a considerable minority of the motor group in particular (29% MV; 15% EN) felt that a trade was not essential; and this view gained ground in both groups in the third interview (37% MV; 35% EN). By this time the idea had got around that there was more money to be had in semi-skilled work or even in labouring, and it was not so clear that all the advantages lay in having a trade:

"It's important for something behind you; but if it's money you're after don't go for a trade."

"It's not so essential now. All sorts of people get on better without one. It's something to fall back on, but I sometimes wonder if it's worth it."

"The money's bad compared with drivers and labourers."

"It's important but it's not where the money is—you're better off labouring."

Nevertheless, most of those who felt this way still thought that a trade did carry with it the advantages of the security that goes with transferability of skills; and the majority of all the apprentices still gave this as the most important reason for acquiring a trade through apprenticeship.

Referring back to Table 6 we see that a certain number of the apprentices, particularly in the engineering group, spoke of other advantages as well.[3] Having a skill that others do not have, being able to take pride in it and to derive satisfaction from doing skilled work—this was one of the advantages mentioned by some (14% MV; 14% EN):

"If you have a trade you take pride in your work."

"It's a more interesting job—wider scope, more variety—that's the main reason."

"I was looking for training—the skill of the job."

"It's a skill. You've got to use your knowledge and make up your own mind."

Another point mentioned only by a few (7% MV; 9% EN) in reply to this question about the importance of trade but significant

[3] The fact that these were mentioned by only a small proportion of the apprentices in reply to a free-response question does not mean that these advantages were not in the minds of the others. Most respondents were content to mention only one advantage—trade-security—and did not go on to mention others.

nevertheless for a later stage of our discussion, was the opportunity offered by a trade for career development:

"You must have one if you want to get anywhere—if you want to work your way up."

"You've got no chance of getting on without a trade or qualification. . . . Pay or promotion are the chief advantages."

These responses provide the first indications of the overall goals or purposes of the apprentices to which we referred in the introduction to this section, and which can usefully be identified now. They are: firstly, the achieving of a particular type of long-term *security* based on the transferability of skills from one job to another; secondly, the acquiring of certain *practical skills* enabling them to take an interest in their work; and thirdly, securing the opportunity for *career development* in the future. It is not being suggested that these objectives were present in their minds of all the apprentices equally. The third one in particular seemed to be a significant objective for only some of the boys. But all three emerged, as we have just seen, in the replies to our enquiry about the reasons for wanting a trade. We believe that the apprentices' attitudes as a whole can helpfully be interpreted in the light of these objectives, and we shall attempt to show this as we proceed.

Before moving on, however, we should note that one other type of reply was given to the question about the importance of a trade (see Table 6). A certain number of the interviews in the first year (19% MV; 31% EN) thought that a trade was important because it would lead to better pay in the long run. As we have already seen, a contrary view was prevalent at a later period. We do not propose to discuss this point now. The apprentices' attitude to money was complex, and we shall require to give it special attention once we have discussed other responses.

Attitude to Work

Since apprenticeship is an arrangement by which training for the future involves participation in the practical work of the job at the same time, it is important for us to look not only at the apprentices' attitudes to training and education, but also at their attitude to work in general, and to the work of their trade and their workplace in particular. As is well known, this is an extremely difficult area to explore, since the danger of being given facile or socially correct answers is particularly real. We approached the topic by following three lines of enquiry. In the first we wanted to discover whether

the apprentices liked or disliked their work in general. But because of the dangers we have referred to we approached the question obliquely, by asking (in the first and second interviews) first whether in the boys' opinion most older people did or did not enjoy working. It was hoped that this would serve to discourage facile positive responses by the apprentices about themselves.

TABLE 7

ENJOYMENT OF WORK[4]

	MV				EN			
	1st Year		2nd Year		1st Year		2nd Year	
	%	N	%	N	%	N	%	N
Adults								
Most adults enjoy work	28	25	14	11	30	28	25	21
Mixed	14	13	10	8	16	15	27	23
Most don't enjoy work	56	50	75	61	51	47	47	40
Don't know	2	2	1	1	2	2	1	1
Totals	100	90	100	81	101	92	100	85
Self								
I enjoy and expect to continue to enjoy	46	41	17	14	37	34	31	26
I enjoy but may change	49	44	53	43	53	48	49	41
I enjoy to a limited extent	—	—	21	17	—	—	19	16
I don't enjoy	5	5	9	7	9	9	1	1
Don't know	—	—	—	—	1	1	1	1
Totals	100	90	101	81	100	92	101	85

It will be seen from Table 7 that in the first year a minority of less than a third thought that most adults enjoyed work, and the proportions fell even further in the second year. In each case the larger number thought that most older people did not enjoy work. We then asked them whether they themselves enjoyed working. In spite of their verdict about older workers, the vast majority of

[4] In the case of this and all subsequent tables where responses at different stages are compared, figures were extracted which showed what the position would have been if those who later dropped out were excluded from the figures for the first year. In every case the exercise made no difference to the trend, and so these figures have usually been omitted so as not to make the tables excessively complicated. They have however been retained in Tables 12 and 13 where comparison between the different stages is especially important. In any table where the totals do not correspond with the total numbers in the sample in that year, this indicates that there was no response by a few respondents to the question concerned.

the apprentices in both interviews insisted that they themselves enjoyed work, and a large number in the first year thought that they would continue to enjoy working even in adult life. By the second year, however, some of the boys were less sure about their enjoyment of work. It is worth noting that there was a greater change of response between the two interviews in the motor group than in the engineering group: more of the motor apprentices thought most adults did not enjoy work, and fewer of them expected to go on enjoying work themselves. We shall take up this point again in due course. Meanwhile, however, the main point to notice is the generally positive note sounded by the large majority of the apprentices when asked for their general reaction to work.

Our second line of enquiry was to ask in the first interview what in the apprentices' eyes were the advantages of the particular trade they were entering, compared with other trades. The intention here was mainly to discover to what extent they viewed their work and trade instrumentally, *ie*, as a means of securing extrinsic rewards such as money, status or security, and to what extent they viewed it expressively, *ie*, as something to be done for its own sake and its own intrinsic satisfactions. In reply the majority of the apprentices (65% MV; 60% EN) indicated that for them the advantage of their particular trade was simply that they liked the kind of work which it involved. In fact, many of them seemed surprised at the question, since they assumed that the answer was obvious. To choose a trade was tantamount to deciding what kind of work one liked the most. As one boy put it: "What would you go into a job for if you didn't like it?" It had not occurred to most of them to consider other criteria, such as future rewards, security or status, in their deciding between one trade and another. Some, it is true, did refer to these things, and it is perhaps worth noting that there were more amongst the engineering than amongst the motor apprentices. This is in keeping with the impression we received earlier of the engineering boys as less enthusiastically devoted to one trade and more critically open to alternatives. But even amongst them the majority referred to intrinsic satisfactions rather than extrinsic rewards as the main criteria for preferring one trade. Furthermore, the interviewer was left with the impression that many of those in both groups who did not mention intrinsic satisfaction were taking this for granted. This points to a high level interest of both in work in general and in the work of their particular trade amongst the apprentices at the start.

The third line of enquiry was to try to discover as fully as possible

what were the apprentices' thoughts and feelings about their work during their second and third years, once they had had longer experience of it. On each occasion they were asked to indicate freely what they liked and what they disliked about their work. Their answers were probed and discussed in order to gain as complete an understanding as possible of the apprentices' attitudes on this point. The answers were subsequently coded in order to give a rough idea of how widely particular opinions were shared, but it would be a mistake to base too much on numerical comparisons with answers to this type. The most striking thing about the responses was the number of apprentices (2nd year: 49% MV; 41% EN. 3rd year: 32% MV; 58% EN) who made spontaneous reference to liking the more demanding jobs. Many of them referred specifically to tasks which were "difficult" or required skill:

"I like engine work. . . . It takes more thought. I like the difficult bits." (MV)

"I like working with motors—engines. It's more difficult but I like it." (MV)

"I like the big jobs—they need more skill." (EN)

"I like stainless steel welding—it's more difficult." (EN)

"I like jobs you have to think about—problems—difficult jobs." (EN)

There was, however, a small group of seven motor apprentices in the second year and nine in the third who made particular reference to liking the easier jobs. We shall want to see later on whether these boys differed at all from the others in their performance or progress through their apprenticeship.

Another exception was provided by those motor apprentices, 22 in number, who by the third year came under an incentive bonus scheme. With them a distinct terminology seemed to apply. Whereas elsewhere a "big job" or a "good job" referred to a comparatively advanced job involving a reasonably high level of skill, the apprentices in the bonus garages tended to use these terms to refer to jobs, whether simple or difficult, on which it was possible to make good bonus. In the same way, any job on which it was not possible to earn much bonus, even if it was a demanding or intrinsically interesting job, was spoken of as "rubbish." It seems that incentive bonus schemes, by introducing another set of values and expectations with regard to work tasks, tend to detract from the apprentices' interest in difficult jobs with a high skill-level.

Closely related to the liking for difficult tasks was the appreciation of opportunities to do jobs on their own, or to see the results of their work and to get a sense of achievement. References to liking this type of work were made by about a quarter of the boys in the second year and by over a third in both groups in the third year:

"You get satisfaction from making things go and seeing it work." (EN)

"I like being given a job and left to do it in my way." (EN)

"When you overhaul something and see it working." (EN)

"You get satisfaction if you've stripped down an engine and built it up again and it goes first time—*you've* done it!" (MV)

"When you strip down an engine and build it up again and you see it running and you think that *you've* built it." (MV)

The other main thing that many apprentices appreciated about their work was variety:

"There's a lot to do—a mixture—you're not doing the same thing all the time." (MV)

"There are changes all the time—variety—there's something different to do." (EN)

But alongside this a good number of the apprentices were beginning in their second year to experience some dissatisfaction. Already many of them were discovering that the work did not consist only or mainly of the bigger, more interesting tasks they enjoyed. A lot of it was routine, repetitive and sometimes boring, and this was the most significant of the things they disliked about their work:

"I'm doing lubrication all the time—the same thing every day." (MV)

"There are too many services—day in and day out." (MV)

"There's not much variety—you're always on the same thing." (EN)

This source of dissatisfaction, which was singled out by about a quarter of the apprentices in each group in the second year, apparently increased considerably during the course of the next 12 months. In the third interviews it was mentioned by roughly half the boys (51% MV; 48% EN). It seems that, while, as we have seen, most of the apprentices liked being given demanding, responsible work with a good skill content, by the third year a large number of them

were particularly conscious of the routine, repetitive tasks which required comparatively little skill. In this connection it is worth noting that none of the apprentices complained that they were being worked too hard, or that too much was being expected of them in terms either of the quantity or nature of their work. On the contrary there were complaints from a few boys that there was not enough to do:

"Sometimes there's nothing to do—I don't like this." (EN)

"It's boring sitting about—there are too many men." (EN)

"I left—because there was not enough to do—I was bored." (MV)

The only type of demand which apprentices complained of was mentioned by a few of the motor apprentices who spoke of not being allowed to finish jobs they were on before being called away to something else:

"I don't like being kicked about from one job to another before I finish it."

"If you get started on a decent job, someone takes you off it."

What emerges from these three lines of enquiry into the apprentices, attitudes to their work can be summarised as three points, which can be stated with different degrees of confidence at this point.

Firstly, it seems quite clear that the large body of the apprentices in both groups had quite positive attitudes to work, particularly in the first stages of their apprenticeship. They knew that many adults did not like work, but they insisted that they themselves did. They chose their trade, or assessed the advantages of various trades, on the basis of the enjoyment or satisfaction which they thought would be derived from that type of work, rather than on the basis of any external reward. And they emphasised their liking for achievement and for doing the more difficult tasks. Together these responses indicate consistently that for the majority of the apprentices work was something which they expected to find interesting and satisfying.

The significance of this finding will be seen by setting it against those of other studies which have shown that there are many young people who have little or no interest in work and who cannot understand the notion that work can be enjoyable.[5] Even when we allow that some of our apprentices were less enthusiastic than others, and a few preferred easier as opposed to more demanding tasks,

[5] See especially Carter (1962), pp 213-231; Thomas and Wetherell (1974), p 130ff.

this type of entirely negative attitude to work was not shown by any of the boys in our sample. One plausible assumption we may make is that the attitude of apprentices entering skilled trades tends to be different from that of many young people entering less skilled occupations, since they expect the work of tradesmen to be interesting. Indeed, some of our boys made this point quite explicitly:

"If you have a trade you enjoy the job more." (MV)

"Most people who are just labouring will work for money. But a craftsman who is making things can get enjoyment." (EN)

"Tradesmen are happier at their work." (EN)

A number of studies have in fact shown that most tradesmen are interested in their work, or at least that they expect to find it interesting.[6] So it would appear that in this respect our apprentices are typical of many older tradesmen.

Secondly, there are fairly clear indications of a certain amount of disenchantment creeping in during the second and third years of their apprenticeship. This is seen in the increasing number who spoke of their dislike of routine, repetitive and less skilled work. More tentatively, we can detect a suggestion in the responses so far that the motor apprentices were experiencing this disenchantment to a greater degree than the engineering boys. When we recall that a larger proportion of them than of the engineering group started their apprenticeship with single-minded enthusiasm for their particular trade, and then observe that by the third interview more than half of them were complaining of routine, repetitive work, there would appear to be grounds for this conclusion. In addition the nature and tone of many of the motor apprentices' comments add weight to this—comments which do not find very many parallels in the responses of the engineering group:

"I don't like greasing and servicing—you're just doing the same thing."

"I get bored with only services."

"I've never done engines and only once done a gear box."

"Tyres are boring."

"I loathe servicing—it's the same thing over again—it's a bore."

It would be a mistake to say much more at this point about the development of the attitudes of the motor apprentices on the basis

[6] See for example Wedderburn and Crompton (1972), p 23; Blauner (1964), p 32; Goldthorpe *et al* (1968), p 25, 37.

of this evidence alone; but we should bear the point in mind when we come to discuss later responses.

Thirdly, it is useful to recall our suggestion that one of the main objectives or purposes of the apprentices in serving their time was to acquire practical skills which would allow them to take an interest in their work. The attitudes to work which we have described in this chapter—the positive response to work in general and more particularly the references to liking the more difficult and demanding tasks and work which gives a sense of achievement—should, we suggest, be seen as an indication or illustration of this goal or objective. It is fundamental to an understanding of the attitudes of these apprentices to realise that they were not only interested in extrinsic advantages of having a trade, but that most of them wanted to be able to do skilled practical work and to learn the skills necessary for this. These were practical-minded young men: they wanted to do practical work with their hands and they saw apprenticeship as a means of learning how to do these skilled practical tasks. There were, of course, the apparent exceptions. But it is important to understand the desire of the majority to acquire practical skill if we are to understand also the boys' attitudes to training and education, to which we turn in the next chapter.

Money

Before leaving the general question of the apprentices' attitude to work, however, we should add something about their attitude to money. As was indicated earlier, this attitude was complex, and at times seemingly contradictory. In the first interviews a certain number of boys (19% MV; 31% EN) indicated that in their view one of the advantages of having a trade was that a tradesman eventually earned more money than other workers (see Table 3 above). This view was not shared by all the apprentices, and, as we saw earlier, the main advantage of having a trade was seen as trade-security, rather than money. Nevertheless, the belief that a trade would lead to better wages in the long run was current in the first year.

Very few of the apprentices in the first and second years, however, gave any indication that money was important to them at that time. Few in the first interview (10% MV; 19% EN) gave it as one of the reasons for preferring their particular trade. And in the second interview when they were asked what they liked and disliked about their work only a very small proportion referred to money as something they liked (6% MV; 5% EN) or as something they were

dissatisfied about (9% MV; 2% EN). Some of them simply declared that they were interested in the work itself rather than the money:

"I like the work I'm doing. I'm not interested in money." (EN)

"My dad is just interested in money and getting on—not in enjoying work. I think you should enjoy work." (EN)

"(Money's) not the most important thing—it's better to like the job." (MV)

"I find it interesting—I couldn't care less about money." (MV)

We may comment in passing that these findings are in keeping with reports from many other enquiries to the effect that young people show no great interest in money.[7]

Many of the apprentices realised, however, that money would be important later on, and regarded their apprenticeship as a postponement of financial rewards in the interest of learning. This came out in responses to the question about whether they enjoyed work:

"If I was working only for money I would have got a job at 15. I'm working because there's a lot to learn."

"No apprentice is working just for money—he's working to learn."

"When I'm learning the trade I'm looking for experience. When my time's up I'll be looking for money."

"As I get older I'll want more money, so there will be more emphasis on that."

"Later on it will be just for money. When you're older and you've a family you need to do more things."

There were of course a few who declared a special interest in money from the start:

"(I'm working) only for money. I don't think anyone works for satisfaction—but there might be some."

The general attitude, however, in the earlier stages of apprenticeship was that money was not important at the moment, but it would be later on, and a good wage would be theirs when their time was out.

By the third year, however, there was apparently a slight increase in concern about money. In their replies to the general question about likes and dislikes at work, spontaneous reference to dissatisfaction about money increased in each group (from 9% to 18% MV;

[7] Ferguson and Cunnison (1951); Jahoda (1952); Carter (1962); Veness (1962); Jephcott (1967).

from 2% to 19% EN), and spontaneous reference to appreciating their wage also increased (from 6% to 9% MV; from 5% to 12% EN). On this occasion those who did not refer spontaneously to money were asked what they did feel about the money they were getting. Putting the responses together we find that the majority (58% MV; 67% EN) declared themselves satisfied, but that those who were dissatisfied formed a considerable minority, especially among the motor apprentices.[8]

By the third year, also, as we have seen already, many of the apprentices were not so convinced of the overriding importance of having a trade. In part this seems to be due to a change in their belief that tradesmen earn more than other workers:

> "The way things are going just now, you're as well without a trade—labourers get more money."

At this stage most of the young men were still convinced that a trade was of some importance, and none expressed regret at having commenced an apprenticeship; but it is clear that few of them now saw the advantages of having a trade in financial terms. In fact, a number of them indicated that they regarded their trade as a sort of stand-by security, "something to fall back on", which would leave them free to take up more lucrative work:

> "I could change to heavy goods driving for money; I can fall back on my trade." (EN)
>
> "I might need money and so go to a less interesting job which I would do only for money." (MV)

We may sum up the apprentices' views about money in this way. Most of them were not very concerned about money at the start, and while interest in money grew to some extent, it was mostly felt to be a matter which would be of importance after but not during apprenticeship. It was thought by many at the start that having a trade would probably yield better wages eventually, but this view tended to alter later on. This did not, however, substantially alter the belief that it was worthwhile serving an apprenticeship. All in all it seems fair to conclude that a desire of money was not a significant aspect of the apprentices' goals or purposes in serving

[8] It is worth noting that most (22 out of 27) of the motor apprentices expressing themselves dissatisfied with money were in large private car garages, while of the 38 satisfied boys only 11 were in such garages. This is quite possibly related to the fact that most of these garages and few of the others operated a bonus system—a point we have referred to already and will return to more fully later.

their time, and should not be placed alongside the three main goals which we have identified.

Summary

As the apprentices came into work and started their training certain attitudes seemed to be shared by the majority of them. These included the desire for getting a trade of some sort, mainly for the sake of what we have called trade-security; satisfaction with the particular trade they had entered; a positive attitude to work in general and a keen interest in doing the work of the trade; and a lack of concern with money at this point together with a realisation of its importance later on in life. At the same time certain differences emerged amongst the apprentices which may be important: they varied in the extent of their original commitment to the idea of one particular trade when they had left school, and a small minority were doubtful about whether they had entered the right trade. In addition, the motor vehicle and the engineering apprentices exhibited a number of differences which will require further discussion later on.

The responses discussed in this chapter have allowed us to identify three main goals or objectives which seem to have been present to a greater or lesser degree in the minds of the apprentices as they served their time: the desire to achieve trade-security, to acquire practical and satisfying skills, and to secure opportunities for career development. The first two of these, in particular, can be clearly seen in some of the attitudes we have discussed so far.

3

LEARNING THE TRADE

It was explained in the Introduction that the apprentices in both the motor and the engineering study were selected from groups of boys entering different types of training and education programmes. In each case there was one large group attending a major off-the-job training centre (LAGTA and SSEB), smaller groups attending other training centres (OTC), and others who received only on-the-job training with no training centre experience (NTC). Again in each case the majority of the apprentices attended one technical college on a day-release basis, while a smaller number attended other colleges. The following account of the boys' attitudes to their training and education takes account of these different arrangements, as well as of differences in their trades and the characteristics of their employing firms.

We may start by referring to the apprentices' overall attitude to the kind of training they were receiving, as this will set the scene for the more detailed discussion to follow. Asked at the start for their views of the kind of training they thought they were going to get, the large majority (83% MV; 85% EN) said they thought they were getting a good training. While such a response to a question of this kind in the early stages of apprenticeship may not be unexpected, it is worth noting that more than a third (35%) of the 52 boys who were not at training centres expressed some reservation about the quality of the training they were getting.[1]

By the second year most of the engineering apprentices (68%) gave the same response, but half of the motor group (51%) now

[1] Only 9% of the 117 training-centre apprentices expressed such reservations. Differences or associations between the responses of various groups of apprentices were tested for statistical significance using the chi-square test. Where the significance level emerged as $p=0.05$ or better this is indicated in a footnote. In this case $p<0.001$.

made some criticisms of their training. The position was not substantially different in the third year. In both the later interviews the non-training-centre apprentices remained slightly less satisfied with their training than the others. With this general picture in mind we turn to the more detailed aspects of education and training.

Off-the-job Training

Since there was an important division in both groups between apprentices who were receiving off-the-job training and those who were not, our next enquiry was aimed at discovering whether or not they were in favour of attending a training centre in the course of learning their trade. The responses showed that the training centre boys were overwhelmingly in support of this kind of training, and this view was if anything strengthened during the next two years (88 per cent of all training-centre apprentices in 1st year; 90 per cent in 2nd year; 95 per cent in 3rd year). What is more interesting however is the view of the apprentices who were receiving no off-the-job training. In the first year nearly a third of them (31%) felt that they would be better at a training centre, and this proportion rose to not far short of two-thirds by the third year (2nd year 45%; 3rd year 61%). These findings are interesting and important. We can assume that most 15- or 16-year-old school leavers are keen to start an actual job of work, and indeed we have already seen how these apprentices themselves were keen on working and on being given the responsibility of doing real practical tasks which yield a sense of accomplishment. There is also evidence that some young people are impatient of institutions which preserve their learner status in a school-type situation.[2] The high and growing level of support for training centres amongst our apprentices, then, seems to point to two things. The first is the genuineness and generality of their desire to learn their trade well and to be given the best opportunity for doing so—a further indication of the importance of that aspect of the main objectives of the apprentices which we have called the desire for practical and satisfying skills. The second is the realisation on the part of the apprentices of the inadequacies of on-the-job training for teaching an apprentice all he needs to know—a point we shall return to later.

As to the reasons why they favoured or disfavoured a spell at a training centre, the apprentices in their first year had on the whole very well developed ideas. In the main they justified their position

[2] Carter (1962), p 232.

on the grounds of the suitability of the learning opportunities made available to them.

The training-centre apprentices were in no doubt that they learned more and better at a training centre. Some of them perhaps were a little apprehensive about starting work and for them the training centre provided a gentle introduction to the uncertain demands and dangers of industry:

"I was quite keen to come to a training centre—I didn't want to be flung in blindly." (LAGTA)

"You need a training centre so that you know the dangers. If you were in real work you might touch the wires." (SSEB)

"(If you were) in a work right away you wouldn't know anything about the tools, and they'd take the mickey out of you." (SSEB)

Most of them, however, emphasised the superiority of the instruction in the off-the-job situation. They believed that they received more instruction because their instructors had more time:

"You're better in a training centre; in a garage the mechanics don't have time to explain." (LAGTA)

"Men at work can't take so much time to explain." (SSEB)

"Who would teach you in a garage?" (LAGTA)

Also they learned how to do things in the right way by the proper methods:

"Here you learn the right way to do things. . . . In a garage you just get the quick ways."

"This is better—you learn to get things right."

And you are taught a greater variety of things:

"There's more variety. In a workshop you only know about your work."

"Here you get everything about all sorts of cars."

Some of them also had gathered from others that in a first year in a workshop the apprentice is often not given much real work or training:

"In a garage you're mostly sweeping floors and going messages."

"For the first year you'd just make tea."

"In the workshop you're doing messages and going for tools."

As for the apprentices who did not go to training centres, some of them clearly had misconceptions as to what such centres were like. They thought it was simply a matter of classroom explanation or demonstration with no opportunity to do the practical work of the trade:

"You're *working* in a garage . . . not just getting shown in photos." (MV)

"You'd probably get a bit bored (in a training centre) if you never saw an engine." (MV)

"(In a training centre) you're just getting shown." (EN)

Others of them expressed a liking for the working environment and the sense of being able to do the real work:

"You like to feel you're working—it's not just a continuation of school."

Many, of course, believed they learned better in a workshop situation:

"You learn the basics better in the workshop."

"It's better to pick things up for yourself."

Some, however, discovered to their disappointment that they did not learn as much as they thought they would on-the-job, and this no doubt largely explains the increase as time went on in the number of non-training-centre apprentices who favoured off-the-job training. For example, one apprentice electrician said in his first year:

"You would get bored at a training centre. You're definitely better going out with the men."

But by his second year he had changed his mind:

"A training centre is better: I've been on one job for ten months. . . . I could be learning other things."

Returning to the apprentices who did attend training centres we find that the large majority of them expressed satisfaction with the training they received. In the first year three-quarters of the training-centre apprentices in each group declared themselves wholly satisfied with the instruction and explanation, and the rest had only minor criticisms. In the second year the critics were even fewer (7% MV; 23% EN). In the third interview apprentices were asked to look back on their periods at training centres and give their comments on the training, including the length, timing and content of the

different periods of off-the-job training, in the light of their subsequent experience at work. Most of the apprentices still expressed general approval of what was done at training centres. A minority of ten per cent in each group were now of the opinion that their periods of off-the-job training were a waste of time. Roughly half of each group (51% MV; 58% EN) had no comment other than that the training was good. The others had a variety of different comments, arising from the exploratory nature of the enquiry. Some felt the first year was better than the later periods, and some felt the reverse. Some views, however, are particularly worth noting for the purposes of our later discussion of issues connected with training and education. The separation of training centres from their real work was commented on by some of the engineering apprentices in particular. For example, a power station apprentice felt that the training centre was "too different from a power station," and another thought that "you should go to a power station during the time—perhaps a month at a power station." A foundry electrician in a group training centre thought that "you could have gone to your company for a short spell to know what you're going to. You're wondering about it for a whole year." Differing views were expressed on another issue, that of the speed of work at a training centre. A distribution electrician thought there should be "more emphasis on speed. I get shouted at because I'm too slow. You're just taught how to do it—not how to do it fast." But some of the motor mechanics, aware of the pressures of work in a garage, welcomed the fact that "at LAGTA you've all the time you need", or "you're not under any rush to get the jobs out."

Another issue of interest in connection with training centres is the breadth of training. It is part of the policy of most training centres to give training on a fairly broad basis, offering at least some instruction in trades other than the one the apprentice is entering. In particular those centres which follow the first-year programme of the Engineering Industry Training Board offer a first-year common basic training in which apprentices are taught the basic skills of the different engineering trades, but with particular emphasis on mechanical skills. Bearing in mind our apprentices' acceptance of the traditional idea of trade-security which implies the exclusive possession of one particular set of marketable skills, we were interested to know their reaction to learning skills other than those traditionally associated with their own trade. So in the second interview we asked whether they thought it was a good thing to learn something about other trades, or whether they should con-

centrate on their own. It turned out that the idea of learning something about other trades was supported by over two-thirds of the apprentices in each group (69% MV; 69% EN), and rejected by less than a quarter (24% MV; 17% EN), the rest making qualified or mixed responses. There were no significant differences between apprentices involved in different types of training programme. Support for learning about other trades was based partly on a general belief that it is good to "get an outlook on other trades", or to "have an understanding of other things" even though they would never do that work; and partly on an idea that it might become necessary some day to do some of the work of other trades.

This general support must, however, be qualified in one particular respect. During the first-year basic training course of the Engineering Industry Training Board comparatively little time is usually spent on electrical as opposed to mechanical skills. While there are considered reasons for arranging the course in this way, it is understandable that some of the electrical apprentices, looking back on their training centre experience at the time of the third interview, felt dissatisfied. To them the first year was "a waste of time as far as being an electrician was concerned", it was "a bit of everything —not enough electrical." "From the point of view of being an electrician," one boy put it, "it's no use at all." This particular point does not, however, alter the general support given to the idea of learning something about other trades, and the value of off-the-job training for this purpose.

Apart from their view of the training received at off-the-job training centres, what did the apprentices feel about the atmosphere and relationships in the centres? On this point reactions were mixed. In the first interviews most (62%) of the apprentices at large training centres (LAGTA and SSEB) but a smaller proportion (47%) of those at smaller centres declared themselves happy with the way they were treated. By the second year the majority at each of the training centres were expressing satisfaction on this point. The conflicting views of apprentices in the same situation, however, make it clear that individuals react differently to the training centre environment. Comments from within one centre include:

"They treat you great—you couldn't ask for better."

"Sometimes they treat you like kids."

"As if you were one of them."

"You're treated like a load of bairns."

There is no indication from our analysis, however, that these differences are related to other aspects of the apprentices' attitudes. Both types of comment reveal that apprentices expect to be treated as adults. It is not surprising that in this respect the non-training-centre apprentices who went straight into a real work situation seemed to be more satisfied than those at training centres in the first year. The large majority of them (79%) apparently appreciated relationships with the tradesmen under whom they were placed.[3] Nevertheless, it seems that even at the training centres only a minority of the apprentices felt that they were not treated in the way they wished, while the majority had their expectations of adult treatment fulfilled.

The overall verdict about training centres given by the apprentices of both groups entering different trades and undergoing different training programmes is a very positive one. Off-the-job training was appreciated by the large body of those who received it and envied by a growing number of those who did not. Points of criticism made by a few apprentices about some aspects of the basic engineering training, about the length of exclusion from their real work situation, and about relationships within the training centres, do not detract from the general impression of approval given by most. The basis of this approval was that off-the-job training offered them the best opportunity to acquire practical skill, and so fulfil one of their main objectives in serving an apprenticeship.

On-the-Job Training

We turn now to the apprentices' views about the training being received on-the-job at their employer's workplace. The picture that emerges is complex because of the many different situations of the apprentices in our two groups. As was outlined in the Introduction there were differences in the boys' trades, in the size and type of work and other characteristics of their employing firms, in the proportion of on-the-job as opposed to off-the-job training within their apprenticeship programme, and in the arrangements and planning of their on-the-job experience. Because some groups of apprentices spent the larger part of two years in training centres, the enquiry about on-the-job training was largely concentrated on the third interview, to allow all of them to have had meaningful experience of this aspect of apprenticeship.

On-the-job training can be thought of as having two inter-related

[3] For the difference between the NTC apprentices and the training-centre apprentices taken as a whole $p < 0{\cdot}01$.

elements, which are present in varying degrees: explanation, and work experience. The comparative importance attached to these elements varies with different firms and training programmes—a fact which raises issues which we shall discuss later on. Meanwhile we shall attempt to present the apprentices' viewpoints under these two heads.

(i) EXPLANATION

Before discussing the apprentices' view of the quality of the explanation given them at their work, we must ask what the arrangements for explanation were, and who was responsible for explaining the work to the apprentices. It is widely assumed that apprenticeship still usually involves the attachment of each apprentice for a long period of time to one journeyman who has the responsibility of explaining and demonstrating the work of the trade to the apprentice. In fact, this traditional type of arrangement appeared to obtain only to a very limited extent in the situations in which our apprentices were involved, and a variety of flexible arrangements was more typical. In the motor garages boys might be put with a tradesman for longer or shorter periods of time during their first two years, or they might be given simple jobs to do on their own. By the time of the third interviews, over two thirds of them (68%) said they were working on their own. Indeed even by this stage one or two apprentices had a junior apprentice working under them. Among the engineering group, however, only a very few (14%) were working on their own in their third year, and most of these were in very small workshops. On the other hand only four indicated that there had been any long-term attachment to one tradesman. Normally the engineering apprentices were either put to work with a particular man for a short period of perhaps a week, or more often a day, or possibly even for the duration of one job; or else they would be working with a group of tradesmen without attachment to any one man. This latter arrangement was particularly prevalent in maintenance departments in factories. The important thing for us to note is that under the arrangements which the boys described (and which were largely confirmed by their employers, as we shall see) there was usually no one tradesman who had overall responsibility for systematic explanation to any particular apprentice.

This being the case, it is not surprising that many of the apprentices expressed dissatisfaction over the explanation they received at their work. Table 8 gives a rough division of responses in the three interviews to an enquiry about the adequacy of explanation in the

workshop, showing training-centre apprentices and non-training-centre apprentices separately.

TABLE 8

ADEQUACY OF EXPLANATION ON-THE-JOB

Motor Group

	1st Year		2nd Year		3rd Year	
	TC % N	NTC % N	TC % N	NTC % N	TC % N	NTC % N
Explanation sufficient	(75 46)*	54 15	61 36	48 12	68 34	57 12
Explanation deficient	(25 15)	47 13	37 22	52 13	30 15	33 7
Mixed	— —	— —	2 1	— —	2 1	10 2
Total	(100 61)	101 28	100 59	100 25	100 50	100 21

Engineering Group

	1st Year		2nd Year		3rd Year	
	TC % N	NTC % N	TC % N	NTC % N	TC % N	NTC % N
Explanation sufficient	(74 52)*	56 13	75 24	57 12	65 41	61 11
Explanation deficient	(26 18)	44 10	19 6	29 6	27 17	39 7
Mixed	— —	— —	6 2	14 3	8 5	— —
Total	(100 70)	100 23	100 32†	100 21	100 63	100 18

* The figures in brackets give the training-centre apprentices' responses concerning explanation *in the training centre*, since at the time of the first interview they had not yet had any on-the-job training. They are included here for comparison purposes.

† This total excludes the SSEB apprentices who were still at the training centre in their second year, and who were not asked this question.

It will be seen from the table that in each group in each year a substantial minority were dissatisfied with the explanation being given them on-the-job. This contrasts with the number who expressed satisfaction with the explanation in training centres (75 per cent in 1st year, 84 per cent in 2nd year of all TC apprentices). It will also be noticed that there was a tendency, not statistically significant but observable in each group in each year, for the non-training-centre apprentices to be more dissatisfied than the others

with explanation on-the-job. These responses combined with the fact noted earlier that by the third year a majority of the non-training-centre apprentices felt that it would have been a good thing to have gone to a training centre, are an indication of the inadequacy, from the point of view of many apprentices, of on-the-job training unaccompanied by spells at a training centre. We may note in passing that those apprentices who were dissatisfied with explanation in the workshop were particularly prone to feel that they might leave their employer or their trade in the future; but this is something we will take up later on.

If we take a closer look at what the boys had to say on this subject, we find that most of the detailed comments were made by those who were critical of explanation on-the-job. The others mostly said it was all right and left it at that, although a few did give fuller expression of their approval:

"They're experienced mechanics—they explain very well." (MV)

"The foreman explains a lot—and most of the others too." (EN)

Those who were dissatisfied had a considerable number of complaints. One of the most common was that tradesmen did not have the time to explain:

"Most mechanics never stop to explain—they're too busy if you ask them." (MV)

"Things should be explained more—the men haven't got time to explain." (EN)

But some felt that the main trouble was not so much lack of time as lack of inclination or caring:

"I have a feeling that they don't care: they just give you something to do and that's you."

"When I came back (from the training centre) they never bothered about us—you had to get a man yourself to go with."

A few apprentices had received the impression that the explanation was inadequate because the tradesmen themselves did not have adequate knowledge:

"Some of them don't know a thing . . . of those I've worked with about half know what they're doing."

These three points were brusquely summed up by one boy who said:

"Some can't be bothered, some don't know, and some don't have time."

The fact that they were not attached for any length of time to one journeyman but changed from one to another caused a further difficulty for some apprentices. They discovered that different tradesmen had different methods of work and explanation, and this left them sometimes puzzled and uncertain:

"The fitters keep changing," one boy complained, "and this gives a difficulty."

Other comments by the apprentices illustrated the importance of personal relations for explanation on-the-job. While most lads got on well with the tradesmen, a few found the men moody or ill-tempered, with the result that they were hesitant to ask about things they did not understand:

"If I asked I got a grumpy answer."

In such situations it was sometimes possible to find a way round a particular problem:

"I ask another guy in case the first one jumps on me."

But understandably some boys preferred to remain ignorant than to incur the men's displeasure:

"I don't bother asking because the men are creeps—they moan if you say you don't understand."

In addition, some men apparently made it clear that they no longer saw it as their responsibility to explain the trade to the apprentices; day release to go to technical college ought to be sufficient for that:

"They don't explain very much. They just ask, 'What do you go to Tech for?'."

To keep these points in perspective it should be remembered that the majority of the apprentices in both groups felt they were receiving adequate explanation. To some extent this satisfaction may reflect the fact that they did not *expect* very much explanation in the workshop, at least by the third year of apprenticeship:

"You don't need taught after a certain stage—you can do it yourself."

"It's up to the apprentice to find out."

"By doing jobs yourself you learn more than if you're with a mechanic."

In other words, some of the apprentices looked upon their periods of on-the-job training as a time for learning by experience rather than by explanation. Whatever their expectations were, however, more than half of the apprentices declared themselves satisfied with the explanation given them in their workshops.

Nevertheless, the comments of those who were dissatisfied make it clear that there were problems for a considerable number of apprentices in connection with explanation on-the-job, and that these problems arose in their experience primarily from the nature of their relationship with the tradesmen. Lack of time amidst the pressures of the workshop, lack of interest in the apprentices or of kindly disposition towards them, lack of knowledge of some technical aspects of the trade, and misunderstandings about their responsibilities towards the apprentices, together with the workshop arrangements by which tradesmen were not normally given responsibility for any one apprentice for any length of time—these were the things which in the perception of a number of the apprentices affected their relationships with some or all of the tradesmen and thus made on-the-job training less than satisfactory.[4]

The overall picture that emerges from the apprentices' responses about explanation in the workshop is one of broad satisfaction on the part of the majority. But a considerably greater amount of dissatisfaction was expressed over this than was expressed about explanation in training centres. From the apprentices' comments it would appear that the place where difficulties were felt was in the actual contact between the boys and the journeymen alongside whom they worked.

(ii) EXPERIENCE

The other element in on-the-job training is work experience—the opportunity to be involved in the doing of the various tasks of the trade in the real-life situation. As was said earlier, opinions differ as to the degree of explanation which should be part of on-the-job training; but there is no doubt about the importance of work experience in the learning of the trade. The adequacy of this experience for the apprentices can be assessed according to two criteria: the level of work which the apprentice is given and expected to do, and the breadth of experience or of the skill-area covered by the tasks in which he is involved. Both these aspects were taken up

[4] *Cf.* Liepmann (1960), p 105: "Insufficient teaching of craftsmen is a general source of serious dissatisfaction."

in the third interviews, by which time the apprentices could look back on considerable periods of on-the-job training.

Understandably, perhaps, the question of the level of their work was not something to which the apprentices had apparently given much thought. That others were concerned about this question we shall see later. There was practically no evidence that apprentices felt that the level of work was excessively advanced or that too much was being asked of them. Only six of the 152 boys in both groups in the third interview said the work was sometimes too advanced or too difficult, but even for them it did not appear to be a significant problem. More did feel that the work was too simple—that they were not being entrusted with sufficient tasks of a high skill level (18% MV; 25% EN). Those who felt this were spread over various types of firm and various trades, and there is no evidence that this view is associated with the type of work or work allocation in any particular workshop. It does appear, however, as we shall see later, that dissatisfaction with the level of work had some connection with the apprentices' future intentions. For our present purposes the important point is that most of the apprentices in their third year (78% MV; 65% EN) were satisfied with the level of work they were being given to do. One or two, it is true, declared that on reaching their third year they had begun to get the right level of work only after taking action to secure it:

> "I was being used for a bit—digging trenches by myself, driving a van. I threatened to leave and it's all right now."

There were, however, remarkably few complaints of this kind, and in fact this line of enquiry drew very little in the way of explanatory comment from the boys. It was apparent that the level of work did not constitute an issue in the minds of the apprentices in the way that the lack of explanation did for some of them. The possibility of establishing different levels of work within a trade and allocating them to different grades of craftsmen had not occurred to most of the apprentices. Generally they accepted the view that the work of the trade was what it was, and were satisfied if they were getting practical experience at the level of skill they associated with the trade.

The same degree of satisfaction did not, however, appear to exist with regard to the other aspect of work experience, namely, the breadth of the skill area, or the variety of tasks covered. This was particularly apparent amongst the engineering group. Table 9 gives the responses to a question on this topic according to the type of work done by the apprentices' firm.

From the table it is clear first of all that the motor apprentices as a whole were more satisfied about the breadth of the work-experience than the engineering apprentices were.[5] We saw earlier that some of the motor group seemed to feel some disenchantment with the work of their trade as time went on. The relatively high level of satisfaction with the breadth of their experience which we

TABLE 9

BREADTH OF WORK-EXPERIENCE IN THIRD YEAR

Motor Group

	Small Private Garages		Large Garages Private & Mixed		Heavy Vehicle Garages		Plant Fitting Workshops		All MV	
	%	N	%	N	%	N	%	N	%	N
Fairly wide experience	61	11	69	25	83	10	80	4	70	50
Limited experience	39	7	28	10	17	2	20	1	28	20
Mixed, unsure	—	—	3	1	—	—	—	—	1	1
Totals	100	18	100	36	100	12	100	5	99	71

Engineering Group

	SSEB		Maintenance Departments		Others		All EN	
	%	N	%	N	%	N	%	N
Fairly wide experience	63	19	27	7	40	10	44	36
Limited experience	30	9	73	19	52	13	51	41
Mixed, unsure	7	2	—	—	8	2	5	4
Totals	100	30	100	26	100	25	100	81

now observe probably reflects a realisation on their part that even if some parts of their work was of a disappointingly routine nature, nevertheless they were being allowed, by this stage, all types of work which came into their garage. Most of them, as we have seen, were by this time working on their own, and, because of the extent to which the garage trade depends on apprentices for its operation, were being expected to undertake all types of work.

[5] $p<0.01$.

A second point to note is that the greater degree of dissatisfaction among the engineering apprentices is due in considerable measure to the reaction of boys in maintenance departments of factories and foundries. By contrast the SSEB apprentices mostly declared themselves satisfied on this point.[6] It may be that the nature of maintenance work, in which breakdown repairs must be done in a hurry whenever and wherever they occur, thus making the planning of apprentices' work difficult, left these apprentices particularly unhappy about the breadth of their experience. Whatever the causes of it, one of the implications of a narrow skill-area was that the transferability of their skills (and by implication their trade-security) could be limited in the future. As one foundry maintenance apprentice complained: "I'll only be fit for foundries after this." Breadth of experience is thus an important issue. It has a connection with the apprentices' overall goals, for without it both the acquisition of skill and the achievement of trade security are threatened. We shall see in the next chapter that dissatisfaction over breadth has a connection with what the apprentices expected to do after their time was out.

Meanwhile there is one further point we should note about work-experience. Few of the apprentices were aware of any plan or programme for their on-the-job training, by which they could be sure of spending a suitable period of time gaining experience of the different aspects of their trade. In the motor group in the third interview 80 per cent knew of no plan, and of the 12 per cent who acknowledged that there was a fairly detailed plan or scheme, half were of the opinion that it did not work. This is no doubt to be expected in the conditions under which most garages have to operate, with the work varying constantly with different vehicles which come in for repair. Amongst the engineering apprentices a larger number (27%) were aware of a fairly detailed plan for their on-the-job experience, but more than three-quarters of these were among the SSEB apprentices. Only five (out of 30) apprentices in factory maintenance departments were aware of detailed programmes, and three of these were of the opinion that they did not work.

(iii) IS ON-THE-JOB TRAINING IMPORTANT?

The responses of the apprentices on the subject of explanation and experience as part of on-the-job training give the impression that while the larger number of them were fairly satisfied, there were

[6] $p<0.01$.

more criticisms of aspects of this part of their training than of off-the-job training. Explanation by craftsmen was felt by some to be inadequate, while the range of experience was thought by over half the engineering boys to be too narrow; and there was a widespread sense of lack of any plan or programme in on-the-job training.

These criticisms, however, should not be taken to imply that the apprentices rejected the idea of on-the-job training, or would prefer it to be replaced by an entirely off-the-job programme. Their attitude towards the importance of training in the workplace is best shown by their responses to a question about the length of the period of apprenticeship. The idea of a shorter period did not find many supporters amongst the apprentices (with the possible exception of motor apprentices in the second year, but their numbers fell away again the next year—1st year MV 18%, EN 13%; 2nd year MV 28%, EN 9%; 3rd year MV 9%, EN 5%). It seems that the idea grew less attractive as the boys moved on into their third year. At the same time there emerged a small number, mostly in the engineering group, who declared that the period should actually be longer (MV 6%; EN 24%). One young man even went so far as to refuse to accept it when his time was out. He insisted on, and was given, an extension to his apprenticeship period. The majority in each interview were in favour of the existing four-year period. To shorten it would, in the words of one of them, "make a farce of everything". The general view was that "it takes four years for knowing the job right—you can't rush it." That is not to say that they felt they needed systematic instruction in their trade for a period of four years or more. On the contrary, many felt even when they were half way through their third year that they did not need any more explanation, and that they should be allowed to get on with doing the job. What then was the importance of continuing the apprenticeship period? It became clear that the importance lay in the fact that while they were still apprentices, even if they were doing all the work of the trade, they still did not carry the full weight of responsibility for their work. Once you are a fully qualified tradesman, "*You* carry the can", "You get the blame if it's not right." Whereas so long as you are an apprentice you can "give the excuse that you're just an apprentice". For this reason becoming a tradesman was something to be viewed with a certain amount of apprehension:

"You'll be more responsible. I won't like it very much."
"I'm not looking forward to it. I dread what it'll be like."

Being an apprentice meant that there was a safety net below them:

"I like the idea that someone checks my work now."

In other words, the reason why the apprentices favoured a long apprenticeship was not because they wanted more instruction but because they wanted an extended period of time during which they were able to do the work of the trade, but were sheltered from the full responsibility. The importance of such 'sheltered experience' as part of apprentice training is something to which we shall return in a later section. Meanwhile, however, we should note that the apprentices' emphasis on this type of experience implies that they were certainly not opposed to the idea of on-the-job training. To remove all apprentice training to off-the-job training centres or further education colleges would deny them that period of 'sheltered experience'—doing the actual job in the real-life situation but without full responsibility—which so many of them felt to be an important part of learning their trade.

From the apprentices' point of view then, on-the-job training appeared to be important but problematic. It was important because they wanted to do the real practical job. Off-the-job training, while it was important, should not be so extended as to deny them adequate experience in the real-life situation. Their experience should be sheltered but it should be experience of the real thing. This is in keeping with the overall purpose of most of the apprentices to acquire practical skill. They were not interested in detached or theoretical learning for its own sake. They wanted to do the practical work, and saw learning and experience as means to this end. On the other hand, on-the-job training was experienced by some as problematic, sometimes because in the early stages, the explanation by craftsmen was inadequate, or sometimes because there was insufficient breadth or planning of their experience. For these reasons the majority felt it should be accompanied by periods of off-the-job training, to give them a fuller opportunity to acquire the practical skill.

Further Education

All the apprentices in our study were attending a technical college on a day-release basis at the start of their apprenticeship. The courses they were following varied to some extent in the first year, but the variety increased, particularly amongst the engineering apprentices in the later years. Because of this variety we did not enquire into the apprentices' opinions about details of the various courses. We

were concerned rather, to obtain their views on the value and importance of their college work as a whole. An open-ended question on this topic produced many different responses. Before discussing some of the important points that emerged, we set out the overall pattern of response in Table 10.

It must be stressed that the figures in the table represent only a crude coding of a mass of qualitative data, and comparison on the basis of the figures should not be pressed too far. Nevertheless, they provide a framework for a discussion of the apprentices' attitudes to college and further education in the course of which we will draw on material from their responses to a number of other questions as well. There are four main points to be made:

(i) The general attitude of most of the apprentices to college was broadly positive. Only a small minority of boys expressed any clear antipathy or hostility to college. A considerably larger proportion felt that their college work was definitely worthwhile and important. There were many who had mixed feelings and made qualifying comments but on the whole they tended to recognise that college had some value and importance for them. It will be noticed from the table, however, that the engineering apprentices appeared to appreciate the value of college work more than the motor apprentices did: in each interview more of them unequivocally responded that college work was worthwhile, and fewer said it was a waste of time.[7] In the previous chapter we observed that the engineering group as a whole were more influenced in their original choice of trade by their studies at school, while the motor apprentices were more influenced by the practical experience of working on cars. In the light of this it is not surprising that the engineering apprentices were more interested in pursuing college-based education in connection with their trade. A further point which appears in the table is that there seemed to be more uncertainty about the value of college work in the second year than in the other years. This same pattern was to be seen in some other responses, on liking or disliking college, and on the general quality of training. There was apparently somewhat less enthusiasm about education and training in the second year than there was earlier or later. To what extent this may have been due to a rubbing off of the initial enthusiasm of the first year, or to something connected with the stage of personal and social development of the boys at this age, it is hard to say. But

[7] Comparing the numbers who were clearly in favour of college with those who were clearly against, $p < 0.01$.

TABLE 10

GENERAL VIEW OF COLLEGE WORK

	Motor Group								Engineering Group							
	LAGTA		Other TCs		No TC		All MV		SSEB		Other TCs		No TC		All EN	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
First Year																
Mainly worthwhile	40	17	32	6	41	12	39	35	59	22	51	16	30	7	49	45
Good in parts, qualified	43	18	42	8	55	16	47	42	38	14	45	14	70	16	48	44
Mainly not worthwhile	17	7	26	5	3	1	14	13	3	1	3	1	—	—	2	2
Total	100	42	100	19	99	29	100	90	100	37	99	31	100	23	99	91
Second Year																
Mainly worthwhile	27	11	35	6	15	4	25	21	47	16	28	9	45	9	40	34
Good in parts, qualified	56	23	35	6	55	15	52	44	47	16	59	19	50	10	52	45
Mainly not worthwhile	17	7	29	5	30	8	24	20	6	2	13	4	5	1	8	7
Total	100	41	101	17	100	27	100	85	100	34	100	32	100	20	100	86
Third Year																
Mainly worthwhile	45	17	58	7	38	8	45	32	70	23	60	18	33	6	58	47
Good in part, qualified	26	10	8	1	43	9	28	20	30	10	30	9	44	8	33	27
Mainly not worthwhile	21	8	25	3	10	2	18	13	—	—	7	2	6	1	4	3
Not at college	8	3	8	1	10	2	9	6	—	—	3	1	17	3	5	4
Total	100	38	99	12	101	21	100	71	100	33	100	30	100	18	100	81

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many instructors and college teachers have remarked on the fact that from their point of view the second year is a difficult time, and that by the third year, when the boys reach the age of eighteen, there is a change of attitude. Changes of this kind during the course of the years of apprenticeships seem to be reflected in our data, but they are not dramatic changes. The overall picture of broad general approval of their further education work remains true throughout.

(ii) Just what the apprentices thought they were gaining by attending college was made clearer when we asked them, in the second and third interviews, whether or not they would choose to attend if they were given an entirely free choice in the matter (Table 11).

TABLE 11

WHETHER WOULD ATTEND COLLEGE BY CHOICE

	2nd Year				3rd Year			
	MV		EN		MV		EN	
	%	N	%	N	%	N	%	N
Would go for learning and certificate	48	38	71	60	49	35	69	56
Would go only for certificate	38	30	24	20	24	17	20	16
Would not go	10	8	4	3	11	8	6	5
Don't know and other responses	5	4	2	2	7	5	—	—
Not at college	—	—	—	—	9	6	5	4
Totals	101	80	101	85	100	71	100	81

The table shows that only a small minority in each group would choose not to attend if they were given the option, but amongst the majority who said they would attend there were some, especially in the motor group, who said that their object in attending was solely to gain a certificate, and not to increase their knowledge or understanding. Others, amounting to a majority of the engineering apprentices, but less than half of the motor group,[8] said that their decision to attend would be based not only on the desire to have a certificate but also on the value of what they learned at college. It is worth noting that the positions adopted by the apprentices in this

[8] Comparing the numbers in the two groups who would go for the sake of what they learned in the second year $p<0.01$, and in the third year $p<0.05$.

connection did not depend solely on whether or not they *liked* going to college. There was in each year a considerable minority who disliked the college (1st year: MV 33%, EN 28%; 2nd year: MV 42%, EN 23%; 3rd year: MV 22%, EN 28%).[9] But the majority of these said they would in fact attend if given the choice, and many of them, especially in the engineering group, said they appreciated the importance of what they learned at college. In other words, the boys were mature enough to recognise the importance of college even if they happened not to like it.

In passing we may note that the main reason given for disliking college was that it was "too much like school", and "you're treated more like children." But in saying this it is important to point out that this was not the view of the majority of all the apprentices. Many emphasised how different college was from school: "There's more freedom"; "They don't treat you like a wee boy any more"; "They treat you like working men." There were quite a number of appreciative references to the fact that "you don't get the belt", and others appreciated being able to talk to teachers freely in an ordinary way.

Referring back now to the question of attending college if given a choice, we can see that there were two ways of looking at the importance of college. Some saw it as a means of advancing their knowledge and understanding in connection with their trade. Others saw it as the institutionalised means of achieving a valuable qualification. This latter view of college attendance simply as a means of gaining a certificate is to be understood in terms of the apprentices' objective of achieving trade-security and increased job-opportunities in the future through transferability of skills. This was evident from the response to an enquiry about the importance to them of a City and Guilds certificate. Most of the apprentices (73% MV; 56% EN) regarded a certificate as important because it was the means to additional job-opportunities within their trade in the future. Serving your time as an apprentice was regarded, as we have seen, as itself a means to trade-security. To possess a college certificate was to have this type of security reinforced. Most employers in the future, they believed, would choose a tradesman with a college certificate in preference to one without one. Thus by gaining a certificate they could increase their chances of getting jobs or being

[9] The number of engineering apprentices who disliked college in the third year was increased because of the fact that most of the SSEB apprentices changed college after the second year, and most of them disliked the change. Otherwise dislike of college rose in the second year and fell again in the third as indicated above.

able to change jobs within their trade. There were, of course, other apprentices, particularly in the engineering group, who regarded certificates as important for other reasons, and we shall refer to this shortly. Meanwhile we are concerned to emphasise that the attitude of many of the apprentices to college attendance can be interpreted and understood by reference to one of their main objectives in pursuing an apprenticeship.

(iii) There seemed to be a certain amount of confusion in the attitude of the apprentices to further education arising from uncertainty as to its real purpose, particularly in relation to the motor repair trades. This can be illustrated by reference to the first-year non-training-centre apprentices. It will be seen from Table 10 that they showed a comparatively high level of support for college work. Further examination of their responses, however, shows that a large number of them felt that there was too much theory at college, and that there ought to be more practical work:

"It's a great place this! But I don't like getting all theory—you don't get practical work."

"It's definitely useful. . . . But I'd like more practical work."

"I don't think they do enough on the practical side."

These were boys who were receiving no off-the-job training. Clearly they welcomed the opportunity of receiving some systematic teaching, but they were disappointed that the college did not provide the kind of practical training they were really looking for.

The interest of these boys was centred almost exclusively in doing the practical work of the trade. And this can be said of most of the apprentices in the motor group, and of many in the engineering group as well. For these apprentices the importance of the college lay in the opportunity it provided to understand that practical work more fully, and thus perform it better. For that reason they found it very difficult to understand why the college course included work of a theoretical or abstract kind which seemed to them to have nothing to do with the practical job. As one boy put it indignantly:

"They're teaching you things not connected with your trade!"

Others felt that:

"There's too much theory and maths."

Or

"We'll never use these formulas."

That is not to say that most of the apprentices rejected the idea of

theory as unimportant. In fact, when asked directly about this most of the apprentices in the first year replied unequivocally that it was important (MV 63%; EN 72%). But for most of them theory was important in so far as it was related to, and of direct assistance in, the performance of the practical work of their daily job. It was, in fact, quite striking how so many of the apprentices said about theory that it was "important but. . . ."

"It's important, but there should be more opportunity to put it into practice." (MV)

"It's important, but they should do the practical first and get the theory related to it." (MV)

"It's important but it could be more related to what we're going to use." (EN)

"Theory is important, but they don't give you the useful stuff. (EN)

Indeed, it is interesting to note that in both groups belief in the importance of theory fell away quite considerably over the next two years (2nd year: MV 48%, EN 62%; 3rd year: MV 38%, EN 51%). While it is not exactly clear why this should be, it suggests either that as they became more familiar with the practical work of the trade they increasingly took the background theory for granted; or else they found the work to be less demanding in terms of theory than they had anticipated. Either way it tends to confirm the view that apprentices of this type are inclined to regard theory in the form of scientific principles or mathematical skills as important and interesting only in so far as they see it as having direct relevance to practical work. Their attitude to college was thus frequently one of ambivalence—an ambivalence which can be readily understood in the light of their main objective to acquire practical skill. They approved of some of the college work which seemed to further this objective, but rejected other parts of it as irrelevant.

Given this view of college work, it is also understandable that a number of boys who attended training centres could not see the need for attending two separate places of off-the-job learning. What they needed in order to acquire practical skill could, in their view, more suitably be given them in one place. Those parts of the college work which were most important to them were very similar to what was being done in training centres. It seemed to them that the college and the training centre were often covering the same ground, leading to unnecessary repetition and sometimes confusion:[10]

[10] Similar findings amongst groups of apprentices are reported by Liepmann (1960), p 121; Venables (1974), p 66; Kaneti Barry (1974), p 22.

"We're doing the same thing in two places and they contradict each other."

"Here they tell you to do a job one way, there they tell you another."

"Why can't they put the City and Guilds through this training college (*sic*—training centre). It's just the same."

It is true that repetition or overlapping was seen by some apprentices as an advantage:

"A lot has been covered at the training centre, but it's good for remembering."

"It's quite useful, you get taught things over again."

But for many apprentices it simply added to the sense of uncertainty about the distinctive purpose of the further education aspect of their apprenticeship, and how this related to their desire to acquire practical skill.

(iv) There were, however, some apprentices who took a rather different view of technical college. They saw college work as a means to career development or a higher type of job later on. It is possible to identify those who held this view most strongly by considering those who made the following types of statement in reply to various questions:

(a) that college work was important not necessarily for their present work but for their future work;
(b) that the importance of certificates lay in the possibilities they opened up of higher level jobs in the future;
(c) that they expected or hoped to continue studying after their apprenticeship period was over.

There were 17 engineering apprentices (but no motor apprentices) who gave at least two out of these three types of response in their third interview; and all but one of them were also amongst those who said they expected to be promoted later on—a subject we will discuss in the next chapter. In addition there were probably others who held this type of attitude and expectation but who expressed it less strongly or spontaneously.

Here then was a group of apprentices, all of whom were in the engineering group, and 13 of whom were in the SSEB, for whom technical college was not simply a means of learning the necessary theoretical understandings for doing practical craftwork, nor simply the means for getting a certificate to enhance their future security.

For them it was a means of gaining important technical and theoretical knowledge which would be useful for a developing career, and certificates which would further promote such a career.

To this end they were keen to pursue courses at technical college even beyond the end of their formal apprenticeship. The emergence of this group justifies our earlier statement that an interest in career development represents one of the main objectives of at least some of the apprentices as they pursued their apprenticeship. This objective will emerge more clearly in the next chapter when we discuss the future intentions of the apprentices. In the meantime we should note that it appears to colour the attitude of some apprentices to college work, making them less ambivalent, and more sure of its ultimate value for them.

Summary

The apprentices as a whole showed very positive attitudes towards learning their trade. Those who attended training centres, and an increasing number of those who did not, felt that off-the-job training was important because it provided better opportunities for systematic learning, particularly of the basics; and there were comparatively few criticisms of the organisation, methods or atmosphere of training centres. On-the-job training came in for more criticism. Problems connected with the actual contact of apprentices with the tradesmen gave rise to a frequent complaint of inadequate explanation, and many also felt that their experience was limited in its breadth. But it is clear that the apprentices were keen on acquiring practical skill through doing the work, and many of them favoured a considerable period of 'sheltered experience' in the form of a long apprenticeship. Most of the apprentices felt it was worth their while pursuing the further education aspect of their apprenticeship by attending technical college, but a certain number, particularly in the motor group, felt the value to lie simply in securing a certificate which would help with job-opportunities later on. Most were appreciative about those aspects of college work which seemed to fit in with their desire to acquire practical skill, but many were doubtful about those aspects which seemed to them irrelevant to their practical work. Some training-centre apprentices complained of an unnecessary overlap between college and training centre, and there was uncertainty about the distinctive purposes of the two institutions. There was, however, a particular group, mainly of engineering apprentices, who were especially keen on college work, and expected to continue it as a means to future career development.

In general, the apprentices' attitudes towards the opportunities offered to them of learning their trade are explicable in terms of their principal overall objectives. The desire to acquire practical skills can be seen to be behind the attitude of the majority to on-the-job and off-the-job training and further education. The desire to achieve trade-security and future job-opportunities was present in the importance they attached to gaining City and Guilds certificates, while the goal of career development was made apparent in the distinctive attitude of some of the apprentices to further education.

4

THE FUTURE

In this chapter we turn to the question of what the apprentices' views and attitudes were about the future which awaited them when they had served their time and qualified as tradesmen. In particular we were interested in three questions: to what extent did they anticipate moving from one employer to another within their trade; did they have in mind the possibility of moving out of their trade altogether; and did they expect or hope for promotion later on?

Changing Jobs and Transferability of Skills

In the earlier interviews we raised this as a very general question, in view of the fact that they still had a long time to go before finishing their time. Did they, we wondered, fancy the idea of settling down in one job for a long time, or of moving around from one employer to another? In the first interview the two groups were almost identical in their overall response, with a half (51% MV; 54% EN) preferring the idea of settling down, and just over a quarter (27% MV; 27% EN) favouring moving about. But a clear difference was apparent between those boys who were at training centres and those who were not. Nearly two-thirds (62%) of the training-centre apprentices fancied staying in one job for a long time, exactly twice the proportion (31%) of the non-training-centre boys.[1]

The position was different, however, in the second year. By then we find that a large number of training-centre apprentices had changed their minds on this point and the proportion who preferred staying long-term in one job had dropped considerably (TC 36%; NTC 41%). A majority of all apprentices at this stage (55% MV; 63% EN) were in favour of some degree of moving around. It

[1] $p<0.001$.

seems that the desirability of changing jobs tended to be felt not when they were in training centres but after they had experienced their actual work in industry. This gives ground for thinking that the idea of changing jobs in the future may be connected with dissatisfaction with some aspects of their work situation.

By the time of the third interview the apprentices were able to look ahead to finishing their time in the not too distant future. So we enquired about their intentions when their time was out. Would they stay on with their present employer, or would they move; and, if so, why? We discovered that at this stage most of the young men had a very open mind. Only a few (14% MV; 10% EN) thought they would stay on for any considerable period with their present employer. About a third (35% MV; 32% EN) were fairly definite that they would leave their present employer soon after their time was out. The rest were uncertain: they might stay on for a while, but they would probably move sometime; or they would assess the situation in the light of available opportunities at the time.

Our brief fourth-year enquiry showed that as they neared the end of their apprenticeship some of those who a year earlier had thought they would move on finishing their time, now felt that they might stay on for a while at least with their present employer. Nevertheless a large proportion (65% MV; 77% EN) still thought they would probably leave, if not right away, at least some time in the not-too-distant future. Moreover these proportions are exclusive of those apprentices, amounting to a considerable number in the motor group particularly (MV 48; EN 11), who had already left their first employment and who could not be contacted in the fourth year—a point to which we shall return in due course.

In considering the significance of these responses we should notice two things. The first is that the apprentices generally assumed that it would be *possible* for them to move around or change jobs once they were qualified tradesmen. It was clear from discussion with them in the early interviews that most of them anticipated no great difficulty in being able to change jobs in the future if they wished. In the third interview about a third of them (29% MV; 35% EN) felt they would be limited in the kind of firm to which they could go in the future because of some narrowness in their experience. But even that did not altogether rule out the possibility of moving within one's trade. Here we have, then, a further indication of the significance of trade-security for the apprentices. They saw their trade as being the ticket which would allow them to move

from one job to another as they wished or needed to, taking their skills with them. Some of them made the point explicitly:

"A trade gives you the opportunity to move around."

"They're always looking for tradesmen so you can swop about."

Secondly, it is clear that the large body of the apprentices thought they would *want* to change jobs to some extent in the future. There were, of course, a few who liked the idea of permanent employment with their present firm:

"I'd like to stay with the present firm for a long time."

"I hope I can stay with the Electricity Board—for life if possible."

But these were a minority. Of the others some simply felt they would want to move out of the firm where they had served their time. They were afraid that so long as they stayed there they would still be thought of as apprentices. But once they had made a change they would like to settle:

"I'll go for a change—just once, and then settle down."

"I'll try another firm and then I'll probably settle down with one firm."

Others took the view that so long as they stayed with the one firm their experience would be to some extent limited, and that it was a good idea to move around a bit to gain a broader experience:

"I'll try to change to see what other places are like."

"The more you move the more experience you get."

"I'll keep moving to get a vast amount of experience."

This represented in some cases a quite positive approach. By moving around and enlarging their experience they would be able to increase their practical skill, and thus to further one of the main purposes of serving an apprenticeship.

There is some evidence from the third interviews, however, that the intention to move after finishing their time was in many cases connected not so much with a positive desire to broaden experience as with a negative reaction to certain aspects of their present work situation, such as the level of work they were given to do, the quality of explanation, the breadth of experience available or the wages paid. This bears out our earlier observation that when apprentices moved from training centres to the actual work situation more of them started to think in terms of changing jobs in the future.

One of the clearest reasons for wanting to move in the future was the thought that staying in one place would lead to boredom, and therefore they would have to move for the sake of variety:

"I won't settle for too long—you could get bored."

"I'd like to change when my time's out. It gets boring working in the same place all the time."

"I'd rather change jobs. You'd get bored if you stayed in the same garage."

And another important reason was the possibility of getting a better paid job. It will be recalled that the apprentices generally seemed to be not especially concerned about money during their apprenticeship, but that many indicated that they knew it would be important later on. Understandably, then, some of them said they expected to look out for the better paid jobs in the future:

"I'll change around—I'll go where the money is."

"I expect to be changing quite a bit—for money."

On the whole the intentions about changing jobs or staying in them were not associated with the apprentices' type of work or employment. But there was one exception to this. Over half the Electricity Board apprentices (51%) declared in the third interview that they would probably stay on indefinitely with their present employer, a significantly larger proportion than amongst the other groups of engineering apprentices (25%).[2] Apparently many young men employed by the SSEB believed that there were better prospects in that industry than elsewhere:

"There's a good future with the SSEB."

"I want to stay with the Board. They've got a good retirement scheme, and you've got a better chance."

"I expect to stay with the SSEB. It's a nationalised industry—with others you could go redundant."

In these cases the apprentices' future intentions appeared to be connected with the image they had received of the industry in which they were serving their apprenticeship; and we will have cause to return to this point when we discuss attitudes to promotion.

The Electricity Board apprentices who hoped to stay indefinitely with their employer were, however, untypical. As we have indicated the large body of apprentices thought that they would probably

[2] $p<0.02$.

take advantage of the opportunities which they believed having a trade would give them, of changing their employment, if not frequently, at least once or twice after their time was served. The implications of these intentions for the working of the apprenticeship system, and how they relate to the expectations and policies of employers will be discussed in the next Section.

TABLE 12

INTENTION TO STAY IN TRADE

Motor Group

	1st Year %	1st Year N	2nd Year %	2nd Year N	3rd Year %	3rd Year N	4th Year %	4th Year N
Will stay or probably stay	68	56 (51)	35	28 (27)	27	19	39	21
Could move	16	13 (9)	30	24 (21)	23	16	31	17
Probably or quite possibly move	11	9 (5)	36	29 (23)	41	29	30	16
Don't know	5	4 (2)	—	—	10	7	—	—
No response	9	8 (4)	—	—	—	—	—	—
Totals	100	90 (71)	101	81 (71)	101	71	100	54

Engineering Group

	1st Year %	1st Year N	2nd Year %	2nd Year N	3rd Year %	3rd Year N	4th Year %	4th Year N
Will stay or probably stay	75	69 (59)	61	52 (51)	64	52	64	41
Could move	20	18 (17)	24	20 (19)	17	14		
Probably or quite possibly move	2	2 (2)	14	12 (10)	17	14	36	23
Don't know	2	2 (2)	1	1 (1)	1	1	—	—
No response	1	1 (1)	—	—	—	—	—	—
Totals	100	92 (81)	100	85 (81)	99	81	100	64

Note: The figures in brackets give the number of those in the first year who were still in the sample at the time of the third-year interview.

Staying in the Trade

From the start of the first interviews it was clear that the idea that qualified tradesmen, once they had served their time, could move out of their trade and take up some other form of employment was present in the minds of the apprentices. This emerged from our discussion of the reasons why they wanted a trade. It will be

remembered that the main reason given for wanting a trade was what we have termed trade-security--that particular form of security that comes from possessing transferable skills. Inherent in this concept is the idea that the skilled man may not only change from one job to another within his trade, but may also leave the trade altogether and yet still have his trade "to fall back on." In other words, the fact that boys had decided to serve their time in a particular trade did not necessarily mean that they had chosen their life's work and would remain permanently in that occupation.

We can now see a further indication of the presence of this notion in the responses of the apprentices to a direct enquiry as to whether they expected to stay permanently in their trade or move out of it later on. It will be seen from Table 12 that while there were considerable differences between the two groups (which will be discussed below) there was in each a certain number who thought in terms of eventually leaving their trade. It is important to note, however, that the apprentices who entertained this idea did not do so because they thought they had made a wrong decision about their apprenticeships and the trade they were entering. At each stage most of those in each group who thought they might eventually move out of the trade felt they had done the right thing in serving an apprenticeship in that trade. The possibility of leaving the trade had little or nothing to do with regrets about entering it. It was in their view quite a reasonable and worthwhile thing to do to complete an apprenticeship in a particular trade and then leave it for work of a different kind.

We may note in passing that the possibility of such a course of action could have been suggested in some cases by the apprentices' knowledge of their fathers' position. Fathers of 80 of our apprentices were time-served craftsmen, but it appeared that only 34 of these were still employed as craftsmen in their trade; 19 had moved up to managerial or supervisory posts, while 23 were doing less skilled work.

That is not to say, however, that the apprentices had all thought clearly about the implications of such possible actions. The large majority of all the apprentices in all three interviews indicated in response to another line of enquiry that they thought there would be some change in the work of their trade in years to come and most of these thought there would be considerable change. If this were to happen, the possibility of "falling back on one's trade" after having been out of it for a number of years might not be as realistic as they assumed. Whether possessing a trade will in the future

continue in practice to provide permanent labour market status even after a tradesman has been out of his trade for years is open to question. This whole issue raises questions about occupational choice and the nature of apprenticeship which cannot be pursued here as part of our discussion of the apprentices' attitudes, but will be taken up in a later chapter.

Returning to Table 12, it is clear that the majority of engineering apprentices in each year thought in terms of staying in their trade in the future, although there was a slight increase in the later years in the number who began to think of the possibility of changing. With the motor apprentices it was very different. There was a sharp fall during the second and third years in the number who said they expected to stay in the trade, and an increase in the number who thought they would leave it. By the third year only just over a quarter (27%) of those left in the sample clearly intended to stay long term in the trade; and by that time 19 (21 per cent of the original sample) had already dropped out. It is true that if we look at the responses of only those 54 motor apprentices who were still available by the time of the fourth-year enquiry we see that one or two of them by that time had begun to move back to the idea of staying permanently in their trade. It seems, then, that in the case of a few lads, the thought of leaving the trade may have been merely a part of that feeling of disillusionment or antipathy about various aspects of their apprenticeship which seemed to set in about the second year and which began to change again as the lads neared the end of their time. Even so it is still the case that from the time of the second interviews onwards only a minority of the motor apprentices felt reasonably sure that they would stay in their trade in the long term. In this respect they differed quite considerably from the engineering apprentices.

Why were so many of the motor apprentices thinking of leaving their trade? They themselves gave various reasons. One was that they would find the work boring if they stayed too long:

> "I might get fed up working on motors—sometimes you get fed up."
>
> "You'd get bored if you stayed too long."
>
> "I might move out later on . . . you get fed up doing the same thing—you're at it night and day."

This is in keeping with our observation in Chapter 2 that many apprentices began to be somewhat disillusioned by the routine,

repetitive nature of much of the work. But since such sentiments about their work were expressed as much by engineering as by motor apprentices, this does not take us very far in understanding why so many more of the motor group thought of leaving the trade. The notion that wages were low in their trade was, however, one that began to bother many of the motor apprentices in particular:

"I might need more money than you get as a mechanic."

"I like the trade but I feel I'm working hard and others get more money for less."

"I could move out—to factory work maybe—for more money."

We saw earlier that not many of the whole body of apprentices seemed to be very much concerned about money at the time, though they realised it would be important later. With the motor apprentices, however, there seemed to be some connection between dissatisfaction over money and expecting to leave the trade.[3] In other words, many of the motor apprentices who said they were thinking of leaving the trade were amongst those who were expressing dissatisfaction over money, and it is therefore understandable that many were thinking of trying to find better paid jobs in the future.

Another reason for possibly leaving the trade was the dirty nature of the work. This was mentioned most of all during the third interviews:

"It's too dirty—oil and that—and the conditions—lying under motors when it's been raining and all the water dripping on you."

"You get fed up with the dirt—I like to be dressed."

"I'd go for a cleaner job—our hands are rough."

This was not an aspect of the work which seemed to worry the apprentices when they were younger. But as they grew into manhood the dirt and oil connected with the work conflicted with their desire to be 'dressed', with the result that many began to think in terms of looking for a cleaner job in the future.

Boredom, low wages and dirty work—these were some of the factors contributing to the idea of possible moving out of the motor trade. It seems, in fact, that this idea arose not from any specific cause, but out of a general feeling of dissatisfaction with the garage and the work. This is further illustrated by the fact that those who by the third interview expected to leave the trade tended to say

[3] Significance not quite within the limits defined earlier.

that they had received insufficient explanation of the work,[4] and that the training was not all it might be,[5] although none of them gave this as a reason for possibly leaving the trade.

It was also clear from the responses, however, that apprentices who had begun to be dissatisfied with the nature and conditions of the work and its rewards were encouraged to think of leaving the trade by the fact that so few mechanics seemed to stay all their lives in garage work. A number of apprentices referred to this:

"It's not a job for older men."

"You don't see many old mechanics."

From their experience in the garages they had got the idea that it was "a young man's trade." It was probable, therefore, that in a few years they too would follow the many motor mechanics who had left the trade before them.

As we have already seen, however, this did not mean that they regretted having entered the trade. The large majority (70%) even in the third year had no doubts on this point. They were glad to have the trade "behind them." At the very least it was a security they could "fall back on." But it was also possibly a stepping stone to something else which might be broadly similar, but which might have fewer of the disadvantages they had encountered in the garages. A number hoped to move to lorry-driving because the pay was better and they could see something of the world. Engineering in the Merchant Navy was another line some thought of going into for the same reasons. Others spoke of aero-engine work because it was more interesting, or even car assembly work because it was better paid.

Many of these motor apprentices started off, it will be recalled, with a keen interest in becoming a mechanic and "working with motors." Analysis of the interview responses suggests that those who had left school without a clear idea of what they wanted to do were more inclined by the third year to think of leaving the trade eventually.[6] But even amongst those who were most committed at the start there were many who later spoke of leaving. Experience of working in a garage for a couple of years had persuaded them that this was not what they wanted to do for all their life. So when they considered alternatives their minds turned to other jobs which had to do with vehicles or engines but which in their view would offer better pay or conditions.

[4] $p<0.02$. [5] $p<0.001$. [6] $p<0.03$.

What this means in terms of the scheme we have adopted for interpreting the attitudes of the apprentices is that these young men still saw their apprenticeship as serving one of their main goals, namely the achieving of trade-security; but that some doubt now surrounded the other goal of acquiring practical skill and the satisfaction of exercising it. Some of them apparently felt disillusioned about the skill and satisfaction to be had within their trade, and believed they would find this more in some related field; while others felt that the skill and satisfaction connection with their trade would have to be abandoned for financial reasons.

Promotion

Our last subject for enquiry amongst the apprentices had to do with their level of aspiration. Did they *like* the idea of promotion to a higher job in the future, or would they prefer to remain on the shop floor? And if they desired promotion did they also *expect* to achieve it? An attempt to summarise the responses and attitudes on these points is given in Table 13.

The first thing to notice about these responses is that the large proportion of the apprentices, particularly at the start of their apprenticeship, liked the idea of promotion. This applied almost equally to the motor and the engineering apprentices. A great many boys spoke in terms of a rather general hope or desire: "I'd love to try and go up"; "I like to think I'll get on"; "I hope not to stay as a tradesman"; "I'd like to get promoted." In fact it was assumed by many at this stage that promotion was a generally desirable thing which everyone would like: "Everyone wants to be promoted"; "In a way everybody's looking for promotion." But it was also clear that at this stage there was no clear distinction between desire for and expectation of promotion. Most of those who wanted to be promoted felt they had some chance. Achieving promotion was believed by most to depend on a combination of hard work and ability or experience, and there was no good reason why they should not succeed by these means. There were, of course, some who said that they would not want promotion or that they were indifferent to it, but these were a small minority at this stage. This minority was especially small (four out of 37) among the Electricity Board apprentices, who as a group expressed more desire for, and expectation of, promotion than the rest of the engineering apprentices.[7]

Amongst some of the motor group, on the other hand, aspiration

[7] $p<0.02$.

TABLE 13

EXPECTATION OF PROMOTION

Motor Group

	1st Year %	N	2nd Year %	N	3rd Year %	N	4th Year %	N
Hope for promotion—as high as possible	38	34 (24)	24	21 (17)	21	15	19	10
Hope for promotion—not too high	32	29 (24)	17	15 (13)	13	9		
Would like, but don't know if chance	11	10 (8)	24	21 (18)	28	20	37	20
No special notion, not fussy			12	10 (7)	20	14	20	11
Don't want promotion	14	13 (11)	21	18 (15)	18	13	24	13
Don't know, and other responses	4	4 (4)	1	1	—	—	—	—
Totals	99	90 (71)	99	86 (71)	100	71	100	54

Engineering Group

	1st Year %	N	2nd Year %	N	3rd Year %	N	4th Year %	N
Hope for promotion—as high as possible	32	29 (25)	23	20 (19)	19	15	34	22
Hope for promotion—not too high	42	39 (36)	18	16 (16)	20	16		
Would like, but don't know if chance	12	11 (11)	17	15 (15)	22	18	29	19
No special notion, not fussy			15	13 (10)	15	12	26	17
Don't want promotion	13	12 (8)	21	18 (16)	25	20	11	7
Don't know and other response	1	1 (1)	6	5	—	—	—	—
Totals	100	92 (81)	100	87 (81)	101	81	100	65

Note: The figures in brackets give the number of those in the first year who were still in the sample at the time of the third-year interview.

took the form of a desire or dream that one day they would own their own garage or motor business. This was expressed spontaneously by no less than 22 (24%) of them in their first or second years:

"I see myself in a wee garage of my own."

"I'd like to start my own business and make a success of myself."

"I'm hoping to get a mechanic's business of my own."

If we turn to what the apprentices said in the later interviews, we find that there was a considerable falling away from this high level of aspiration. By the third interviews the proportions who said that they hoped for promotion had fallen by about a half, while the proportion who did not want it or who were indifferent had risen. But there was also a considerable number who indicated that although they would still like to be promoted, they realised now that their chances were slim. Desire for promotion was no longer necessarily accompanied by expectation of it. Aspirations were toned down by a new assessment of the possibilities. For example, one lad who in his first year had clearly said: "I expect to be promoted—I don't want to stay a tradesman all my life," admitted in the second interview: "I cannae see it—but I would take it if the chance came." It is probable, then, that some who now said they did not want promotion did so as a result of realising that they were unlikely to achieve it anyway. But a number of them explained their rejection of the idea of promotion by referring to what they had seen of people in authority, and the implications of having responsibility:

"When you climb the ladder you don't get on with your mates so well."
"Too many folk have heart-attacks that way—there's too many problems."
"People don't like the foreman."
"I don't fancy being a foreman—it's a lonely life."
"I ken what foremen get called."

And accompanying this increased rejection of or indifference to future promotion, there was a greater cynicism about how it was achieved. Those who did not want promotion were particularly inclined to say that the way to a higher job was by "knowing the right people" or by "crawling."

Nevertheless, in spite of this falling away, particularly in the *expectation* of promotion in the future, it is clear that even by the time of the final interviews the level of aspiration among the apprentices as a whole was high—higher than has been reported on many studies of adult workers or of young people.[8] Two points need to be made in this connection. The first is that, even though experience progressively tempered their expectations, a clear

[8] For adult workers see Goldthorpe *et al* (1968); Wedderburn and Crompton (1972); Sykes (1965). For young people see Veness (1962); Carter (1962); Ashton (1973); Venables (1967); Brown (1975).

majority of the apprentices at every stage continued to indicate that they would *like* to be promoted in the future. Clearly the kind of traditional working-class rejection of the whole idea of moving up from the shop floor[9] was far from the minds of most of these lads. Whether this may be due to the influence of increasingly systematic education and training of apprentices, or to a more general shift in the climate of opinion amongst younger people in the country as a whole, we can only speculate. But whatever the reason, the evidence from these apprentices would suggest that the traditional idea prevalent amongst many working men in the past may have less hold in the future.

Secondly, we must emphasise a point which for our purposes is an important one. Even after the falling off in the expectation of promotion in the later stages, there remained a considerable group of apprentices who still expected, and deliberately aimed for, promotion:

"It's my aim to get promoted—probably into management."
"I'm going to work my hardest to get promoted. Others may get there before me, but in the end I think I will."

In some cases it was explicitly stated that this was a clear part of their intention in serving an apprenticeship:

"Pay and promotion are the chief advantages (of having a trade)... You've got no chance of getting on without a trade."
"If I thought I wouldn't get on I'd give up my trade now."

In our discussion of the apprentices' goals or objectives in serving their time and undergoing their training we have indicated that there were some who saw their apprenticeship not only as a method of achieving trade-security and of acquiring practical and satisfying skills, but also as a means to future career development. It is now possible to recognise that those apprentices, numbering 24 in the motor group and 31 in the engineering group, who continued at the time of the third interview to entertain expectation of promotion (*ie*, gave either the first or second response in Table 10) broadly represent this type of goal or purpose. It is worth noting two things about the characteristics of these aspiring apprentices. The first is that a disproportionately large number of them is found amongst the Electricity Board apprentices. (Two-thirds, 67 per cent, of the Board's apprentices fell into this category, and the Board's apprentices account for over a third—37 per cent—of the total in this

[9] See especially Hoggart (1957), p 74.

category). The reason why the Electricity Board's apprentices should have such high aspirations is open to debate. It may be that they believed that there would be particularly good opportunities for promotion in a large nationalised industry. If so it is probable that many of them will be disappointed, in view of the current recruitment and promotion policies of the South of Scotland Electricity Board. On the other hand the high aspirations of the Board's apprentices may be attributed to their high level of ability as shown by test scores at the start of the apprenticeship. The SSEB boys' performance on the Gupta test (see Chapter 7 below) was significantly better than that of the other engineering apprentices.[10]

The second point worth noting is that those apprentices who expected promotion were distinguished by a particularly positive attitude to technical college and the studies they were involved in there. In each group those who expected promotion were particularly inclined to believe that college work was worthwhile.[11] Many of them also volunteered the view that college studies were not necessarily so valuable at the moment but were important for the future. Indeed, a very high proportion (62%) of the 55 boys in both groups who by the third interview still expected promotion indicated that they were considering continuing study after the end of their apprenticeship—a possibility which was being considered by only 19 per cent of the others. Clearly the high aspiring apprentices saw college work as a means of achieving the kind of success they wanted in the future. Typically they believed that promotion was to be achieved not simply by hard work or ability but by possessing certificates or paper qualifications. This attitude to the future and to college work was most marked amongst some engineering apprentices. Indeed it is possible to identify some 16 of them (12 of whom were Electricity Board apprentices) who expected promotion in the future and who also said that college work was valuable for the future, that certificates were important to them to help them get higher jobs and that they would continue study after their time was out. These young men represent the extreme of an

[10] Fifty-six per cent scored 38 or more and five per cent scored 33 or less, compared with 37 per cent and 33 per cent of the other engineering apprentices, $p<0{\cdot}01$. It is interesting to note in passing, however, that there was no association between high aspiration and success at school as indicated by the number of SCE O-grades the apprentices had sat. Apparently entertaining hopes of promotion had little to do with having done well at school. It also appeared to bear no relation to the occupation or to the social class as indicated by type of occupation of the apprentices' fathers.

[11] In the third interview $p<0{\cdot}03$ in each group.

attitude which was found in a lesser degree amongst some others—the attitude which sees apprenticeship as a means to promotion or more advanced work, and college work as an important part of the process.

Summary

By the time they had started at their actual place of work, few of the apprentices thought in terms of staying indefinitely with their present employer. Changing jobs within one's trade was understood to be *possible* because of the transferability of the skills of their trade. But it was also something which most of the apprentices felt they would *want* to do—either because they would get bored or in some other way dissatisfied if they stayed in one place, or because they would be looking for more money in the future, or else because they would want to broaden their experience. The Electricity Board apprentices stood out, however, because so many of them thought in terms of staying with their present employer.

The idea that it was possible for a tradesman to move out of his trade and fall back on it later on if necessary was present in the minds of the apprentices from the start. Those who indicated that they might do this did not feel they had made a mistake in entering the trade. While most of the engineering apprentices thought they would stay permanently in their trade, the number of motor apprentices who intended to do this fell away to a small minority as the years went by. Boredom, desire for more money, dislike of dirty work, and a realisation that few mechanics did in fact remain permanently in their trade contributed to these intentions. These apprentices did not regret serving their time as motor mechanics, and many of them hoped to use their training as a stepping stone to other kinds of work, while keeping their trade behind them. Their apprenticeship was, in their view, still serving the purpose of giving them trade-security, but some were not as clear as they were that it would provide them with the skill-satisfaction which they also desired.

As for aspirations, in the early stages a high proportion of all the apprentices both wanted and expected eventual promotion. Later on the expectation fell away to a considerable extent, but the feeling that promotion was desirable remained, in a way that seemed to reflect a change from traditional working class attitudes. There was also a group who continued to expect and aim for promotion. These young men tended to have scored highly on ability tests, and they were marked by a particularly positive approach to their

college work, which they saw as a means to future promotion. They were found particularly amongst the Electricity Board apprentices. For them apprenticeship was not only a means for achieving trade-security and skill-satisfaction but also a road to career development.

In our presentation of the views and attitudes of the apprentices we have been concerned especially to indicate and illustrate what their overall goals were in serving their time. What did they expect out of it? We have argued that one of the three things they hoped to gain was trade-security—the security that comes from possessing the transferable skills of a trade. The importance of this emerged in many ways in the boys' responses, and it remained with them throughout the period of their apprenticeship. A second thing they hoped to gain was the satisfaction that comes from possessing practical skills. This goal gave rise to fairly positive attitudes to training and education in so far as these were seen as the means of obtaining such skill-satisfaction. Some disappointment was apparent, however, in this connection, as many of them, particularly in the motor group, found their work less satisfying than they had hoped, and in some cases found their college education less directly relevant to their practical experience than they had expected. A third goal was evidenced by a certain number of apprentices, found most of all amongst the Electricity Board employees, who saw apprenticeship as a means to promotion and future career development, and college work as an important part of that process.

SUMMARY OF DIFFERENCE BETWEEN THE GROUPS

Before concluding our discussion of the attitudes and intentions of the apprentices it will be useful to summarise briefly the main differences between the two groups as these emerged from the interviews. In most respects the two groups were very similar. This is not surprising in the light of the fact that they were all lads from broadly the same geographical area entering craft apprenticeships at the same time, and there were few differences in their social and educational background. The only important difference in background was the fact that the engineering apprentices had on average sat more SCE O-grades than the motor boys had.

The differences in attitude revealed by the interviews were in two areas. The first had to do with the apprentices' commitment to their particular trade and the interest and satisfaction they got from their work. Many of the motor apprentices entered their apprenticeship with a clear idea that motor mechanic's work was the one thing

they wanted to do. But as time went on a greater number than in the other group began to experience dissatisfaction with the work in the garages, with the result that ultimately only a minority said they definitely intended to stay permanently in their trade. Few of the engineering apprentices on the other hand had at the start a clear idea of one trade they wished to enter. This group were on the whole more open-minded about which trade they would accept. But fewer of them felt dissatisfied with the work or conditions of their trade as time went on, and only a minority thought they might eventually leave the trade. Thus commitment to their trade was greater among the motor apprentices at the start, but it fell away later on; while with the engineering apprentices it was less marked before their entry, but it developed as time went by.

The other area of difference concerned their attitude to further education and their studies at college. Many of the engineering apprentices were conscious of the influence their studies at school had had on their thoughts about a future trade, and they were nearly unanimous in believing that the work they did at college was worthwhile. More of the motor group had doubts on this point. Moreover a considerable number of the engineering group were thinking of the possibility of continuing their studies even after their apprenticeship was over, an idea entertained by only a very few motor apprentices. In general the engineering group were more interested in and aware of the importance of the theoretical aspect of their work than the motor apprentices were. While the main interest in both groups was centred on the practical work, this interest was more particularly marked amongst the motor apprentices.

These two areas of difference between the two groups will be taken up again when we come to discuss the operation of the apprenticeship system in the two industries.

SECTION B

THE WORKING OF THE APPRENTICESHIP SYSTEM

Having discussed the attitudes and objectives of the apprentices themselves we turn now to a consideration of some of the issues or problems connected with apprentices, training and education which have emerged from our studies. In doing so we must take account of two important factors which have to do with the context in which apprentices' learning takes place. The first of these is the dual nature of apprenticeship as a form of employment as well as a process of education or learning. In this respect apprenticeship is unlike most other educational forms, since the person who is learning is also earning. The apprentice is at the same time a student learning the practical and beneficial aspects of his trade and an employee who seeks rewards and satisfaction from his work and who has to satisfy the demands and requirements of his employer.

Because of this dual character of apprenticeship, the training and education of apprentices must be arranged in such a way as to allow the needs and objectives both of apprentices themselves and the employers who hire them to be met as far as possible. We have seen in the previous section that the objectives of apprentices can be summarised as the obtaining of trade-security which will increase job opportunities in the future, the achieving of skills and the satisfaction of being able to do particular skilled tasks; and the securing of career opportunities in the future. The objectives of employers in relation to apprenticeship will be considered in greater detail in the course of this section, but they may be referred to as, firstly, the need to have current production requirements met, and secondly, the need to secure a supply of skilled manpower for the future. Our discussion of questions connected with apprentices' education and training must take account of the varied and possibly conflicting needs of these two principal parties—the apprentices themselves and their employers.

Secondly, our discussion must take account of the changing industrial and social context within which apprenticeship takes

place today. Changes in technology, in the organisation of industry, in the approach to industrial education and the institutional arrangements for it, and in other aspects of the life of society have meant that apprenticeship arrangements cannot continue unaltered from the past. The issues arising in connection with apprentices' education and training must be seen in the light of this changing context.

The issues we will discuss have come to light partly as a result of the apprentice interviews which we have already discussed, and partly from our discussions and interviews with the boys' employers, training centre instructors, further education teachers, officials of industrial training boards, joint apprenticeship committees, trade unions, and others. As was stressed in Chapter 1, we are not concerned in our discussion with the question of what are the most efficient training methods, but rather with the issues as they appear from the point of view of participants in the apprenticeship system. Seen from this viewpoint, two broad questions emerge: (1) within what dimensions should apprenticeship be conducted—how broad should the training be, and at what level of skill? (2) how should the programme of learning be organised? Our discussion of these issues is of course related to the particular industries, trades and areas with which our case studies are concerned. The extent to which our comments and conclusions bear a wider relevance to apprentice education in other industries and areas must remain to some extent an open question.

5

THE DIMENSIONS OF APPRENTICE LEARNING

Skill-area

The concept of *skill-area* is a useful one under which to consider some important aspects of crafts and apprenticeship. By a skill-area we mean the range of skills which are attached to one particular trade. For a craft to preserve a separate existence in the past it required a skill-area which was in one respect narrow and in another respect broad. It had to be sufficiently narrow to allow the craftsmen to master all or most of the skills concerned and to ensure that it did not overlap to any considerable extent with the skill-areas of other crafts. At the same time the skill-area had to be sufficiently broad or general to allow craftsmen to move from one employer to another and still be able to do work familiar to him, and to allow employers to engage craftsmen from outside with the expectation that they would be able to fulfil their requirements.

If we look, however, at modern industry and the context in which apprenticeship exists today we find two opposite and apparently contradictory trends which affect the skill-area of various trades. In the first place we find that in some industries and firms, and in connection with some kinds of technology, skills are becoming more specific to one industry or even to one company. The development of a great variety of new technological processes and types of machinery means that industries and firms are increasingly different in the processes and machinery they employ. Along with this there is a tendency in some establishments for tasks to be broken down into more specialised parts. In these ways the skill-areas of particular crafts are being narrowed. Skilled engineers may find themselves familiar with only a narrow range of processes or machinery. Motor mechanics may be involved day after day in specialising on one part of a motor vehicle.

This tendency to narrow the skill-area can be discerned from the responses of many of the employers whom we have interviewed, particularly in the engineering study. The reason for employing apprentices given by a majority of managers in Electricity Board districts, in structural engineering, and in maintenance departments of other industries was that they needed to train skilled men for their own specific needs which were different from those of others:

"Our industry is different. We need to train people for ourselves."

"Some of our coppersmiths' work is unique, so we need to train our own men."

"The brick industry feels it's different. . . . It wants to breed its own."

"Some of our skills are specific. It's hard to get men with our skills."

This narrowing of the skill-area was spoken of most in the engineering study. But there was evidence of it in the motor study also. A number of the managers in heavy vehicle firms felt that there was a particular skill-area associated with their types of establishment:

"We can't take private car mechanics. It would cost too much to retrain them."

And in some larger private car firms there is a tendency not only towards a more complete separation of the work of the different trades—mechanic, auto-electrician, panel-beater, spray painter—than is possible in small garages, but also towards specialisation within the skill-area of the motor mechanic's trade.

Alongside this tendency to narrow skill-areas, however, there is also a tendency towards broadening them in other ways. Managers frequently stress the irrelevance of traditional trade boundaries, and the importance of having more versatility and flexibility between trades in the future. "We would like to have men doing both electrical and engineering work," said one manager. In some places the variety of tasks to be done and of technology employed within one establishment or employment has greatly increased, and thus the tradesmen are expected to be responsible for a broader skill-area. So much so in some cases that one manager concluded that, "The job of the electrician is becoming far too wide for one man to cover." The plant fitter's trade is also one which was reckoned to cover a very wide skill-area. This is particularly true in small establishments

where specialisation is less practicable as a means of coping with the increased variety of tasks. "Small firms," as one manager put it, "need versatility."

These two tendencies, then, towards narrowing and broadening of skill-areas, can be seen to be taking place within the areas of our case studies. It is worth noting that, taking a wider perspective, these tendencies which appear contradictory can in fact be two aspects of a single movement. McKersie and Hunter observe: "The new era on the horizon, especially for the process industries will require the integration of skills across *all* functional categories into composite technician and mechanic classifications. We are beginning to see evidence of this development in the chemical, oil, motor car and steel industries where discussions have been taking place over the concept of refinery technician and other industry-specific versions of the all-round mechanic."[1] Under such arrangements craftsmen would cover a broader range of skills within a narrower, industry-specific context. In other words the skill-area would be broadened in one direction and narrowed in another.

It is within this context that apprentice training takes place today. It is important, therefore, that skill-areas covered by this training should be appropriate—that is, should meet the needs both of the apprentice himself and of the employers and firms of the industry he is entering. From this point of view it is clear that there is a danger that it could be on the one hand too narrow, or on the other, too broad.

The need to ensure that the skill-area of training is sufficiently broad has been the focus of considerable attention in recent years. Its importance for both employing firms and apprentices is amply illustrated in our case studies. For employers on the one hand this breadth is important for two reasons. First, breadth of skill-area in training means greater potential for the versatility and flexibility which we have seen to be the desire of many employers. In point of fact there is no evidence from our interviews that any more than one or two of the employers in our study were actively attempting to increase versatility or flexibility between trades. Most of them appeared to accept trade boundaries roughly as they are, according to the character of the workplace, with a greater or lesser degree of informal flexibility. But the desirability of increased versatility was generally assumed by employers; and even the trade union officials to whom we spoke admitted the inevitability of such an increase. Those involved in training (training-centre instructors and industrial

[1] McKersie and Hunter (1973), p 368.

training board officials) did not take up any position with reference to flexibility between trades, but stressed rather the value of having tradesmen who understand the work of others. As one instructor put it: "A better tradesman should understand what the next man does." This is seen as part of the value of the EITB's programme of common first-year training for all apprentices in engineering trades. In one way or another, then, a broad skill-area is seen as being important for efficiency.

Secondly, breadth of skill-area in the training of apprentices is important to employers in assisting their recruitment of tradesmen from other firms or industries. Many managers complained that tradesmen coming to them from outside had received too narrow a training. "We can't take men from factories," explained one electrical contractor, "they've only been on motors." In particular the representatives of smaller firms complained of the training in big firms being too narrow:

"Big firms give too narrow a training."

"Big firms don't teach the full skills—it's just stripping and assembly."

"It's hard for a man trained in a big place to start in a very small place."

From the point of view of these firms, breadth of skill-area in apprentice training generally would make it easier for them to recruit tradesmen for their needs.

If we turn from the needs and objectives of employers to those of the apprentices, we find that it is important for them also that their training and education should cover a broad skill-area. It is important, in the first place, in relation to their desire for trade-security and job opportunities in the future. We have seen in the previous section not only that nearly all our apprentices saw this as one of the main advantages of having a trade, but also that a number of them were critical of the narrowness of the training they were receiving because it meant restricted job-opportunities in the future. This reason for keeping the skill-area of training broad for the sake of the apprentices themselves was emphasised also by many others who have to do with apprentice education and training. Almost all the college teachers whom we interviewed stressed that part of the purpose of further education in relation to apprenticeship was to teach them things which were broader than their present work in case they wanted to move to other jobs in the future:

"You never know where you'll finish up. You've got to cover a wide spectrum because you could move on to pastures new."

"They might not always work with one employer—we should give them as broad a base as possible."

Similarly, training-centre instructors realised there was an obligation to train boys more widely than their present employment required:

"You need other crafts to sell yourself to other people. We could cut the overall time here if we were only training the Board's sparks."

And one Training Board official made a similar point when he said:

"If you can get the basics over, they can move about easily."

A second reason why breadth of skill-area is important to apprentices is because in many cases it adds to the sense of satisfaction they get from skill. We have seen already that this was another of the objectives of the apprentices as they learned their trade. The desire for variety as opposed to narrow repetitive work, and the preference for doing the whole job and seeing the finished result point to the value from the apprentices' point of view of a wide skill-area. Where jobs have been narrowed and reduced in scope they are in effect de-skilled, with corresponding loss of the satisfaction gained from skill. Training in a broad skill-area allows at least the possibility of doing a broader, more skilled job with greater job-satisfaction.[2] Furthermore, as was emphasised to us by one training board official, such a broad training not only provides the apprentice with skills which can give him satisfaction in his present work, but it also provides a base for the development of further skills in the future, thus leading to further satisfaction. The fact that breadth of skill-area was a source of satisfaction for many apprentices was emphasised by a number of further education teachers as well.

A third reason relates particularly to the value of a broadly based first-year training. A number of people we spoke to recognised that this kind of training could be used as a better means of identifying the abilities and potential of a young apprentice. This is one part at least of the purpose of the EITB in its emphasis on common first-year training. And while most of the training centres in our study allocated boys to trades before the commencement of their

[2] Leipmann (1960), p 68, refers to the narrowness of skill-area as "one of the causes of apprentices' disappointment, frustration and consequently indifferent work."

training, the opinion was expressed by some of the instructors that it would help to ensure that a boy enters the trade to which he is most suited if such decisions were taken after he had had experience of a variety of types of work during a broad first-year training. Whether in fact this would result in greater satisfaction amongst apprentices is, however, not clear. We have seen that very few of the apprentices expressed the opinion that they would have been better in some other trade, and none of these few indicated that experience of another trade during common first-year training had influenced him. Nevertheless, it can be argued that basing the decision about which trade a boy is to enter upon his experience and performance during a broadly based first-year training would be a better way of reaching such decisions. That would then provide another reason for a broad skill-area for training purposes.

It is clear, then, that there is much to be said from the point of view of the needs and objectives both of employing firms and of apprentices, in favour of basing the training and education of apprentices on a wide skill-area. All of which may appear only too obvious to many people. What may not be so obvious is that there is also quite a lot to be said, from the same point of view, in favour of limiting the skill-area of training. Our interviews with apprentices, employers, and others make it clear that if apprentice training is too broadly based there are certain disadvantages both for employers and apprentices.

For employers the main disadvantage of a very broad training lies in the possibility that they will not have workers who are sufficiently skilled in the specific and sometimes specialised skills required for their own production. We have seen that many of the employers we spoke to regarded their own type of work as in some ways special. Because of their specific skill-requirements these employers felt that it was important and necessary for them to train their own apprentices, and to teach them, as part of their training, the specific skills involved in their work. If apprentice training were to be organised on the basis of a very broad skill-area it would not be so easy to impart these specific and more narrow skills.

In addition, if employers were to train their apprentices in a wide range of skills including some they did not require and practise in their own workshops they would run an increased risk of losing their trainees to other firms in whose skills the apprentices had been trained. In the electrical trade in particular we discovered employers who trained apprentices for plant electrical work lamenting the loss of their trainees to electrical installation contractors,

while the electrical contractors felt they were training apprentices who were "poached" for maintenance work in factories. A representative of the Construction Industry Training Board explained that:

> "The installation industry trains for domestic, commercial and industrial installation, including the installation of motors. So they can go pretty easily to maintenance work."

In the same way employers in the garage trade felt that the initial training programmes of the Road Transport Industry Training Board had been too broad. Many employers, then, do not take kindly to training apprentices in a wide range of skills which are not used in their workshops, especially if the result is the loss of their apprentices to others who will make use of these skills.

At the same time it is clear that training for a very broad skill-area has disadvantages from the point of view of apprentices as well. Given that the range of skills in any one firm is frequently limited, training in a broad skill-area will often involve training not directly connected with the productive work of the employing firm. We have seen how our apprentices as a whole were keen to do the practical work of the trade and to do the actual work in the production setting. While they were mostly quite interested to learn something about the work of other trades, if their training had taken them too far afield from their day to day work and its requirements many of them would have lost interest. Some of the motivation to learn which comes from doing the actual work would also have been lost. Evidence of this was provided by a number of training instructors who had to put apprentice electricians through the largely mechanical first-year basic training of the EITB. They felt that there was "too much mechanical in the first year curriculum," which meant there was "a problem of motivating electricians who don't want turning and fitting."

Furthermore, it is important for the apprentice and the tradesman that broadening of skill-areas should not go so far as to result in the removal of boundaries between trades. We have observed already that possessing recognised skills in one particular and limited trade has been a significant aspect of the special kind of trade-security which has always been of great importance to craftsmen. It is this qualification within the skills of one particular trade that has given the craftsman labour-market status. To remove trade boundaries would deprive the craftsman of his "ticket" to perform the work of that particular trade wherever he went, and thus

endanger his trade-security. In saying this we are not arguing against flexibility or alterations in trade boundaries, but simply recognising the fact that *from the point of view of the apprentice and the craftsman* focussing training upon the work of a particular recognised trade is important for preserving their particular type of security.

The implication of all these points is that it is important in the organisation of apprenticeship and apprentice training to steer a middle course between training which is too broad and training which is too narrow in its content. The importance of this arises from the basic nature of the apprenticeship system in which trainees are employed by a particular firm and engaged in the work of that firm, and at the same time are being trained in transferable skills which can be used in other employment. In this situation it is important that apprentices should do and be trained in the specific work of their employer. This is important for the employing firms and it also provides the practical motivation and sense of being involved in real work which is necessary for the apprentices' sense of satisfaction. And at the same time it is clear that the skill-areas in which apprentices are trained should be broader than the specific skills utilised in any one firm. This is necessary in order to allow skills and skilled men to be used efficiently within industry, to give employers the opportunity of recruiting tradesmen in the labour market, and to meet the needs of apprentices and skilled men themselves for trade-security and the chance to change their employment.

In recent years there has been considerable emphasis on broadening the skill-area within apprentice training. This can be seen in the training programmes of industrial training boards, in the increase of common training of various kinds in company or group training centres, and in the proposals of the Government in connection with training to meet industry's needs for skilled manpower.[3] Given the restrictions which have prevailed within the apprenticeship and craft system this emphasis is timely and important and, as our study indicates, it is in keeping with aspects of the needs and goals of both employers and apprentices. But our study also shows that for the participants in the apprenticeship system—employers and apprentices—it is also important to retain the links of the apprentice with a particular employer and his training in the specific skills of that place of work. To increase the breadth of the skill-area in a way that involved abandoning the specific if somewhat narrower aspects of traditional apprentice training would mean altering the

[3] TSA and MSC (1975); TSA (1975); DE/MSC (1976).

basic presuppositions of the apprenticeship system in a way that would suit the purposes of neither employers nor apprentices.

Skill-level

'Craft' is frequently taken to refer to one particular level of skill. Traditionally craftsmen are regarded as skilled men and as such are differentiated from the semi-skilled and the unskilled. On the other hand the level of 'craft' skill in modern industry is differentiated from the higher levels of the technician and the technologist. Craftsmen have hitherto been unwilling to give official recognition to any hierarchy of skill amongst themselves. Every craftsman is officially meant to have the skill and competence to perform the recognised work of the trade in the same way as any other. A closer look at crafts and the work of craftsmen, however, shows that differences of level do exist in a variety of ways, and questions about these differences do arise.

In the first place craftsmen, and apprentices training to be craftsmen, are seen to possess varying abilities in relation to their work. It is common for foremen and workers alike to recognise someone as a good tradesman in comparison to someone who is not a very good tradesman. Frequently this is reflected in the allocation of work to different men. As one Electricity Board manager put it:

> "In practice we divide the men into boiler squads and turbine squads—the turbine squads have more skill."

In many workshops there are jobs requiring special skill and ability for which it is known some men are suitable and others are not.

Implicit in this is the second point, that skill-levels vary between different firms, and between tasks and operations within one establishment. In one motor garage a mechanic may do mostly routine servicing of cars, in another he may be involved in highly skilled and complicated repairs. One contracting electrician may do mostly straightforward wiring installation; another may include motors and a variety of types of industrial installation. The different technologies employed by various process or manufacturing firms mean that maintenance engineers require different levels of skill. And within one workplace there are the more complex and the simpler tasks, all of them part of the work of skilled tradesmen.

Given this situation, that differences do exist both in the level of skill and ability possessed by craft workers, and in the level of skill required for various tasks which are performed by craftsmen, what

do those concerned with apprentices and apprentice-training do about skill-level? Our enquiries among employers, college teachers, instructors, and others revealed a diversity of approaches on these points.

Some industries have in fact developed grading schemes, and the apprentices in our study who were employed by electrical contractors came under such a scheme. This allows for different grades of electrical craftsmen, according to the extent of their further education studies and the length of their working experience. The employers and the representatives of the employers' association, the electricians' trade union and the Construction Industry Training Board to whom we spoke, generally felt the grading scheme worked quite well. A few employers regretted the way the grades were tied to college results, but many felt that because of the responsibility attached to their work even the ordinary 'electricians' (the lowest grade) needed to be instructed and tested particularly in the IEE Regulations. Such a grading scheme was not, however, favoured by many people in other industries. In particular an AUEW representative pointed out that:

> "Our union has never agreed with grading. . . . We know that they (craftsmen) are used differently, but they must be *graded* the same. Otherwise there would be the blue-eyed boy."

The motor repair employers whom we spoke to likewise were not generally attracted to the idea of recognising different levels of craftsmen. A certain number of garage managers did acknowledge that much of the motor mechanic's work could be done by less skilled workers who frequently simply replaced parts, while others did the more skilful tasks of diagnosis and fault-finding. But most of those interviewed (41 out of 48) wanted to employ all-round mechanics with at least as much skill as in the past:

> "To do the full range of work you need fully skilled men."
>
> "We're moving towards parts-replacement, but we still need the old skills, because you can't use diagnostic machines in breakdowns."
>
> "We couldn't operate here with less skilled men."
>
> "We mustn't reduce skill because of the need to diagnose."

Among the employers and managers in the Electricity Board and in firms employing engineers, on the other hand, there was a widespread feeling that there ought to be some kind of recognition of

two levels of craft skills. We have seen that such a difference of skill-level can be recognised informally by such arrangements as boiler squads and turbine squads. Others reflected the same point of view:

"We have already reached a situation where there are really skilled men and men who are not so good."

"We want a person who will work with nuts and bolts. . . . As technology develops we will need the more advanced type, but we will still need the nut-and-bolt type. There will be a parting of the ways. . . . There already is an unofficial difference between the really skilled men and the others."

This identification of two types of men and two levels of skill has led to an increased support for the creation of a technician grade to represent the higher skill-level. Indeed the view was expressed by a few technical college teachers that before very long a division between a higher and a lower skill-level would mean that the 'craft' level would no longer exist:

"Eventually what we know as craft will be phased out or made into technician."

"It looks as if *we're* still dealing with craftsmen, and industry is dealing with operatives. Technicians deal with broader things."

To these and others it seemed that the level of skill traditionally covered by the concept of 'craft' was becoming unnecessary or irrelevant in modern industry. It would be more appropriate to divide the skill-level currently subsumed under craft into two: a more highly skilled technician level and a less skilled, or semi-skilled, operative level. But many others, while recognising the importance of having a technician grade felt that the traditional craft level of skill was still relevant. This was emphasised by representatives both of the AUEW and the EITB:

"We don't agree with a technician/operative level. A technician can feed in the data, but someone needs to make the machine." (AUEW official)

"We see that there are increasing semi-skilled operations which were previously done by craftsmen. But the number of craft trainees has stabilised—in fact has gone up a bit. . . . The move to semi-skilled work is limited, mainly to certain companies." (EITB official)

Many employers in the engineering study also supported the recognition of a technician grade while preserving the traditional craft grade also.

This situation can, of course, be said to exist already. There is a large and growing number of courses for technicians at colleges of further education, and a number of firms employ workers graded as 'technicians.' However, only five of the 31 separate firms in our engineering study recognised a technician grade in any way, and even in these five it was sometimes an *ad hoc* or special arrangement.

TABLE 14

NUMBER OF APPRENTICES ENROLLED ON TECHNICIAL COURSES IN ENGINEERING *BY POLICY OF FIRM WITH REGARD TO RECOGNITION OF TECHNICIAN GRADES*

	Number of apprentices in			
	Firms which recognise technicians	Firms which don't recognise technicians	Firms with policies unknown	Total
Technician course—deliberately enrolled by firm	2 (1)*	—	5 (4)	34 (11)
Technician course—enrolled by training centre or college	4 (1)	23 (5)		
Craft courses	4 (3)	144 (21)	13 (12)	161 (36)
Total	10 (5)	167 (26)	18 (16)	195 (47)

* Numbers in brackets refer to numbers of firms concerned.

One firm gave the title to two leading hands because they wanted them on the staff. Another used the name for draughtsmen in the drawing office. A third used it only for foundry technicians.[4] How these practices related to the enrolment of apprentices for technician courses at technical colleges is shown in Table 14.

A total of 34 apprentices in the engineering group were enrolled for courses at technician level at college in the first year. Of these, two were put onto a technician course by a firm which recognised

[4] It should be added that in accordance with their grading agreement electrical contracting firms recognised 'technician electricians.' But since this represents a special use of the title for one step in their grading system for craftsmen and does not involve studying on a technician course at technical college, this usage is omitted from our discussion.

technicians as a grade. Four belonged to a firm which recognised a technician grade without relating it in any way to college courses. In this case the apprentices were selected for technician courses by the Group Training Centre rather than the employer. Five more apprentices doing technician courses were employed by four firms whose policy with regard to technician grading is unknown.[5] The other 23 apprentices belonged to five other firms which did not recognise a technician grade.

The absence of any connection between recognition of a technician grade in employment and enrolment of apprentices for technician courses at college was even more marked in the motor study. None of the 49 workshops which we visited made use of the term 'technician' in relation to any of its employees.[6] In seven branches of two large firms, however, there were employees known as 'testers,' 'quality controllers' or 'service engineers,' and in many firms there were 'reception engineers.' These employees could be thought of as constituting something like a technician grade. Only one of the two large firms referred to, however, went in for a policy of enrolling promising boys for technician courses. This accounted for seven out of 17 apprentices in our sample who were on technician courses at college. The other 10 came from a variety of firms none of which had a policy of creating a technician or other higher grade.

From all of this it should be clear that while there is talk of the importance of having technician grades, and while those responsible for setting up college courses are providing opportunities for suitable people to study on technician courses, there were very few firms in our studies where anything corresponding to a technician grade actually existed and the enrolment of apprentices for technician courses at colleges had little or nothing to do with the existence or otherwise of such grades in their employing firm. In addition we should point out that none of the apprentices in either group who were doing technician courses at college were receiving any special form of *training* as technicians. All were being trained in the same way as other craft apprentices. This situation exists even though the EITB have issued recommendations on the use of technicians, and are encouraging the adoption of specific means of training for technicians. The RTITB on the other hand has difficulties in establishing a clear difference between technicians and other skilled

[5] It will be recalled that we visited only those employers who had one or more apprentices in our interview sample.

[6] With the exception of some Ford garages where all motor mechanics are euphemistically termed technicians.

men because of the great diversity in needs and practice amongst garages of different types.

It is safe to say, then, that none of the boys in our study who were engaged as apprentices were receiving systematic and deliberate training and education for future employment as technicians.[7] This indicates that as far as the evidence of our case studies goes, the industries concerned are not taking serious steps towards the adjustment of the apprenticeship and craft system to allow for a higher or technician grade alongside the traditional craft grade. If technicians are emerging they are, (in the words of an EITB representative), "happening by accident, by their ability rather than by design."

As far as skill-level is concerned, therefore, the general situation is that many of those involved in the employment, education and training of apprentices realised that differences of level do exist within 'craft' skills. Nevertheless, with one notable exception, there was little evidence of any attempt to give recognition to these differences by establishing different grades of tradesmen or by systematically selecting and training technicians as well as ordinary craft apprentices. The exception was provided by the electrical contracting firms, amongst whom, as we have seen, a system of grading was operated. Otherwise, the question of skill-level, which was recognised by many of the more thoughtful and far-seeing of our respondents to be an important one remained largely unresolved. In practice most firms continued to operate with the indifferentiated concept and grade of craft. And into this situation the apprentices themselves fitted quite easily, since, as we saw earlier, they had little idea of different levels of skill.

On the basis of our study we would suggest two things with reference to skill-level. The first is that there ought to be more explicit discussion of the question, and more deliberate attempt to resolve the issues involved.[8] There was evidence that many of our respondents realised that problems do exist in this connection, but little evidence of much attempt to tackle them, apart from the electricians' grading system we have referred to. There is need for an overall scheme, possibly on the lines of the electricians' scheme, which would take account of the varying needs of industry, of changing technology, and of the different abilities and ambitions

[7] We heard of one or two cases where other employees were being trained or educated as technicians but these were outwith the apprenticeship system.

[8] The Government documents referred to in footnote 3 above appear to assume that there are differences of skill-level but refrains from engaging in any explicit discussion of the issues.

of different apprentices. The second suggestion is that in whatever way differences of skill-level may be recognised, it is important for other reasons to preserve the concept of 'craft' and 'trades.' We have seen that "having a trade" is a very significant thing for apprentices, their parents and others, and that the sense of security and of pride in their work of a great many people are bound up with this concept. In view of this it would seem to be preferable to think in terms of expanding the concept of crafts or trades and of including different skill-levels within them rather than to attempt to abolish or bypass them altogether.

Summary

This chapter has dealt with the question of the breadth of skill which apprentices acquire, and the question of different levels of skill within trades. It was argued, on the basis of the views of employers as well as apprentices, that it is important for both parties that skill-area should be neither too narrow nor too broad. Too narrow a skill-area threatens transferability of skills and reduces the apprentice's interest in his work. Too broad a skill-area can mean that apprentices are being trained far beyond their employers' requirements, and can leave them without the satisfaction and security of identification with a particular trade. While the need for breadth of skill-area and flexibility of trade-boundaries has been under-recognised in recent times, the value of a recognisably delineated skill-area has perhaps received insufficient attention.

Different levels of skill are already recognised informally within the craft system. But the existence of a range of abilities amongst apprentices and tradesmen, and the development of more advanced technologies alongside existing craft skills indicate the need to provide a more adequate recognition of different skill-levels. One way in which this could be done is by means of a grading scheme such as has been developed within the electrical contracting industry. There appears to be much to recommend such schemes. Another way is by developing technician grades in employment with entry dependent on the successful completion of technician courses at technical college. But as far as this study goes the provision of such courses within the further education system has not been used by employers on a basis for appointment to technician grades. In general there would appear to be scope for more attempts to deal with the issue of different skill-levels within the apprenticeship system.

6

THE ORGANISATION OF APPRENTICE LEARNING

In the previous section we discussed the apprentices' attitudes to the three different types or aspects of education and training which they were receiving in off-the-job training, on-the-job training, and further education at a technical college. In this chapter we will look at the views about these aspects of education and training held by the others involved in the apprenticeship process—employers, training centre instructors, college teachers and others—and relate their comments to what we learned from the apprentices themselves.

Off-the-job Training

Most of the people in all positions to whom we spoke were broadly in favour of off-the-job training; there were no very strongly voiced views or wide differences of opinion. Perhaps the most important point that emerged from our discussions was the reference point of the various comments, or the criterion by which off-the-job training was assessed.

It is hardly surprising that most of the training centre instructors we interviewed (18 out of 29) felt that off-the-job training was essential or very important. What is interesting is that seven of them thought that while this type of training was good, it could be done equally well on-the-job if the conditions and arrangements were right. Four went so far as to say that on-the-job training would really be better were it not for certain practical difficulties:

"If you could guarantee good tradesmen, on-the-job training would be equal to off-the-job."

"Equally good training can be given on-the-job—it depends on the garage."

"It could be done better on-the-job, but you can't get the instructors and equipment to follow a pattern of training. The working environment is better."

"If you could have a full-time instructor on-the-job this would be better than here."

Moreover many of those who stressed the importance of off-the-job training gave as their reason the inadequacies of on-the-job training. And this was even more marked amongst the seventeen college teachers who were interviewed. Only seven of them felt that off-the-job training was definitely essential, and they mostly stressed the deficiencies of the workshop situation for training purposes:

"Off-the-job training is essential, because of the limitations in the motor industry today—so many businesses simply replace units."

"It's very difficult to get the right conditions in an on-the-job situation, particularly in the first year. First year off-the-job training is necessary."

The rest of the further education teachers all believed that training by only on-the-job methods would be as good as, if not better than, sending apprentices to training centres, if difficulties inherent in the workshops could be overcome. In general it seems that training-centre instructors and college teachers saw off-the-job training as doing the same thing as on-the-job training was meant to do. Off-the-job training was not regarded as desirable in principle, but as something which had become necessary or desirable because of the inadequacies or deficiencies of on-the-job training. The employer's workshop and its advantages and disadvantages from the training point of view remained the reference point throughout.

The employers interviewed in both the motor and the engineering study took a similar position. Of those who sent their apprentices to a training centre few had any serious criticisms, while those who did not mostly had few opinions on the subject. The points of criticism expressed by employers and managers with apprentices at training centres mainly had to do with the relevance of off-the-job training to the requirements of the workshop. One problem in a few motor garages was that apprentices came to them from training centres expecting to do some of the comparatively advanced work in which they were being trained, whereas the garage wanted them for simpler, more basic tasks:

"They get a higher education at LAGTA than we would allow

them to do in the workshop. The basic jobs must fall to the younger boys. They expect to do bigger jobs than we give them."

"Boys come with too high expectations from LAGTA."

A few others complained that, while the training given was good, the apprentices were not taught to work at speed in the way that the garage required—a point which some apprentices referred to as well (p 34):

"There's not enough emphasis on speed and efficiency."

"The pace is relaxed. It takes three or four weeks (after their return) to change up a gear in speed."

Another point to note is that in cases where the work of the firm was somewhat different from that of the majority in a group training centre, the employers tended to express dissatisfaction. Five out of the six representatives of heavy vehicle repair firms in the motor study and two of the three representatives of structural engineering firms in the engineering study felt that the particular needs of their workshops were not being adequately met by the training centres. The relation of the training centre to the place of work was something which concerned many Electricity Board managers in a different way. Of the 17 managers with responsibility for apprentices whom we interviewed 11 expressed the view that there was too great a difference and too little a connection between the training centre and the conditions and type of work done in the power stations and districts where the apprentices were to be working. Many felt that the period of two years of off-the-job training was too long:

"Everything is laid on too easily (at the training centre). It's clean and neat. They're shown what to do—there are no problems. Here it's a different world."

"They're too long away from the working environment."

"The boys should go to the training centre for a short period and then come to industry to find what it's about."

A similar concern about the relevance of off-the-job training to the actual requirements of firms' work was expressed by representatives of employers' associations. This view was also echoed from their side by a number of training-centre instructors:

"There should be a time when the boy is familiarised with a power station while he's still at the training centre."

"I've no idea what an apprentice goes through when he leaves here. I'd like to go out and see what they're doing—it'd be a big help for us."

In drawing attention to these various opinions we are not concerned with whether they are valid or justified. We refer to them as illustrations of the general attitude of people who were concerned with apprentices towards off-the-job training, and of their point of reference in assessing it. Off-the-job training was seen and judged with direct reference to the conditions and requirements of the apprentices' employment situation and not with reference to the general training needs of industry—nor, to any large extent, with reference to the possible future needs of the apprentices themselves. The large majority of those concerned were in favour of off-the-job training, and had few serious criticisms. But there was a widespread concern that it should not be allowed to get too far removed from the day-to-day practical reality of the work done in their employers' workshops. It will be noted that these attitudes are very similar to those we discovered amongst the apprentices themselves. They too were keen on off-the-job training as a means of learning their trade. (In passing we may note that their instructors confirmed this: 19 out of 29 said that apprentices at training centres were generally keen to learn, and only two said they were not). But as we saw earlier they wanted their learning to be directly related to the work they would be doing so that they could get satisfaction from exercising their practical skills.

Since, then, the participants in the apprenticeship process viewed off-the-job training with reference to its relation to the actual tasks of the workplace, how is this training related to the training which apprentices receive on-the-job, within the workplace itself? This is an issue which we will discuss below in the course of our discussion of on-the-job training. Similarly, the question of the relationship between off-the-job training and the work done in technical colleges is one on which many people expressed their views, and we discuss this when we turn our attention to further education.

On-the-job Training

On-the-job training was universally recognised by all whom we spoke to as an important aspect of apprentice learning. The idea of apprenticeship as an arrangement which involves the employment of the apprentice by an employer who is responsible for giving him training in his workshop was not apparently being questioned,

and no one suggested that the training of apprentices should be done outwith the employer's workshop altogether. The more precise purpose of on-the-job training within the context of the other aspects of apprentice learning, however, was not so clear. Where off-the-job training and further education are taking place, is it part of the purpose of on-the-job training to provide explanation of the work of the trade, or is its purpose solely to provide practical experience of the work? The latter point of view was taken by a representative of the Construction Industry Training Board, with reference to that industry:

> "On-the-job training is the application of skills learned in another place, not the learning of new skills. There is no instructor at work to explain because the big ogre of bonus makes a nonsense of this."

Other training boards, however, have taken a different approach. The Engineering Industry Training Board assured us that on-the-job training "undoubtedly involves explanation as well as experience"; and indeed this is implicit in the EITB's module scheme. The emphasis of the Road Transport Industry Training Board has been on "consolidation" in the workshop of what has been learned off-the-job, but it is assumed that there will be some explanation. That there was some uncertainty on this issue even within training circles is shown by the fact that more than a quarter of the training-centre instructors we interviewed thought that the purpose of on-the-job training was simply to provide experience to back up off-the-job training, while the remainder understood that further explanation was an important part of the purpose. Since, however, the general view held by most people we spoke to was that on-the-job training should include explanation as well as experience, we will include both these aspects in our discussion, as we did in our discussion of the apprentices' attitudes earlier.

The questions that arise in connection with on-the-job training have to be viewed in the light of the various working arrangements which were made for apprentices in different firms and in different industries with different types of work. As we saw earlier, our interviews with the apprentices made it clear that the traditional arrangement by which an apprentice is allocated to one tradesman for a long period of time was no longer the normal pattern in the firms in our studies; and also that the motor apprentices mostly reported that they were working on their own by the third year. This situation was largely confirmed by the apprentices' employers.

Of the 49 garage managers interviewed, six said they tried to put young apprentices with individual tradesmen for a period of three months or more, but that this was not always possible. Eleven said their apprentices were working largely on their own even from early stages of their apprenticeship period, while the rest said that boys worked with different tradesmen without any special or long term arrangements. Of the 47 employers and managers in the engineering study 11 said apprentices were put with an individual tradesman for a spell, but only two of these said that this amounted to a long period, while the large majority (33) indicated that the apprentices worked with different individual journeymen or with a group of men as need arose. Only three said their apprentices worked largely on their own. It is further worth noting that of the 11 employers who reported that boys were allocated to one tradesman for a longer or shorter spell, eight were involved in electrical installation work. In this type of work it is still useful to have an apprentice and a tradesman working together—a point we shall return to shortly. But in engineering establishments the practice of allocating apprentices to individual tradesmen for a period had apparently been abandoned almost completely, as far as our study was able to show.

TABLE 15

INSTRUCTORS' AND TEACHERS' VIEWS OF ON-THE-JOB TRAINING

	T.C. Instructors	College Teachers
Satisfactory	1	2
Mixed	6	8
Mostly inadequate	18	7
Don't know	4	—
Total	29	17

Given these working arrangements, how well did our respondents think on-the-job training was working, and what problems were they aware of? In general most of the employers seemed to feel that on-the-job training was working satisfactorily in their establishments, though many of them referred to particular problems. Less favourable verdicts were returned by those involved in further education and training. Table 15 shows that very few of the training-centre instructors and college teachers felt that on-the-job training of apprentices was satisfactory.

The instructors were especially inclined to feel it was inadequate. As with the employers these groups were also conscious of particular problems connected with training in the workplace, and it is worth looking more closely at some of these. They can be roughly divided into (1) difficulties over providing adequate explanation, and (2) difficulties over arranging appropriate experience.

(1) The first problem in connection with explanation was that of allocating responsibility for explaining the work to the apprentice. In places where apprentices are working with a variety of different tradesmen or with none, who is meant to be responsible for explaining the work to them? Under the traditional arrangement it was assumed that the journeyman with whom a boy was placed on a long-term basis had this responsibility. In most firms this assumption that the tradesmen would show apprentices what to do and explain what they needed to know remained unquestioned. In many of the motor garages, however, especially where apprentices were working on their own, they were also encouraged to come and ask the foreman if they had any difficulties. When we interviewed the engineering employers we explicitly asked them not only who was responsible for explanation to the apprentices, but whether the arrangements worked satisfactorily. All 18 of the employers in electrical installation said that the journeymen were responsible, and only two indicated that there were any difficulties or problems in this arrangement. Of the 30 employers in engineering establishments, on the other hand, 20 said that the tradesmen were responsible for explanation, but seven of these indicated that the arrangements were not entirely satisfactory. The other ten had already made a formal or informal arrangement that the supervisor or foreman should accept responsibility for explaining the work to the apprentices. From this it seems that some difficulty was being experienced in a number of engineering workshops in arranging for tradesmen to explain the work to apprentices. The traditional assumption that knowledge would be handed down from tradesman to apprentice did not appear to be wholly adequate any longer, and some firms were making alternative arrangements. Many firms in both studies, however, had altered the traditional relationship between the apprentice and an individual craftsman without apparently giving much thought to alternative methods of allocating the responsibility for explanation to apprentices. And even where thought had been given the problem often remained. As one manager explained:

"It becomes a bit of a problem. We find that many journeymen

> can get it wrong. . . . But the journeyman's part in teaching apprentices is traditional, and supervisors can say it's not their job."

Another reason why explanation on-the-job presented difficulties was lack of time. Pressure of work and the need sometimes to get things done in a hurry meant that even the tradesman who was interested in explaining to the apprentice often did not have the chance. As one training-centre instructor put it:

> "The journeyman of today doesn't have the time even if he has the interest or ability."

Occasionally the pressure against taking time for explanation came directly from the management, as in the case of the garage owner who told us:

> "The mechanics explain to the apprentices, but sometimes they take too much time to it."

But the difficulty over time was felt to be particularly acute where a bonus system was in operation. In such situations tradesmen were aware that if they took time to give explanations to apprentices they would be losing money themselves. In some firms, such as the South of Scotland Electricity Board, an attempt was made to overcome this difficulty by making a financial allowance to tradesmen who had apprentices with them. But even this did not overcome all the difficulties. More than one Electricity Board manager complained that "the craftsmen don't always like having apprentices because it interferes with the productivity scheme." And a manager in a building firm employing electricians pointed out that "men are reluctant to work with first or second year apprentices because of loss of bonus." Bonus or productivity schemes, then, by increasing the financial pressure to work hard all the time, make it difficult to operate the traditional arrangement whereby tradesmen explain to apprentices as they go along. An official of the Road Transport Industry Training Board complained: "The bonus scheme is the biggest thorn in our side."[1]

Along with lack of time, another difficulty spoken of was that some tradesmen did not have sufficient knowledge or the ability to communicate what they knew. "Some fitters," explained one plant-hire firm manager, "are not very good, so they don't explain much." "My impression," said one motor vehicle training instructor, "is

[1] This point was made forcefully by Liepmann (1960) p 105.

that old Joe tells wee Jimmy, and old Joe doesn't know. A lot of misconceptions are passed on."

This difficulty was apparently increased in situations where apprentices had been taught comparatively advanced skills and theoretical knowledge in their off-the-job training and college work. "There are many instances," said one Electricity Board manager, "when because of the variety of their training they embarrass elderly craftsmen." Many craftsmen, we were told, had not received the kind of training and education that the apprentices working with them had been receiving, and so "they basically don't understand *how* things work." They might be able to show a lad *what* to do, but to explain *why* was beyond some of them.

There was the added difficulty that even if craftsmen do have the necessary knowledge they may not have the ability to impart it. Some men of practical ability and understanding lacked the verbal skills to communicate their knowledge adequately.

A problem about explanation which was mentioned by some of our respondents was that there were some tradesmen who were not interested in apprentices, and did not wish to be bothered with them. According to one employer, "some journeymen resent having apprentices"; another said some of them "find it a nuisance"; a third explained that some craftsmen "want to do the job themselves" and so they are not much good for apprentices. Some training-centre instructors and college teachers spoke of the same problem:

> "It comes back to the tradesman. If he's onto a good one he learns, but many don't bother."
> "It seems as if no-one cares."

In mentioning these problems connected with explanation on-the-job we are not suggesting that they existed everywhere, or that all the tradesmen in the firms concerned gave inadequate explanations for one or more of the reasons we have mentioned. Obviously there must have been many tradesmen who took an interest in apprentices, and took time and trouble to explain. To quote two managers:

> "Craftsmen are pleased to air their knowledge—they're helpful."
> "One or two journeymen really enjoy having an apprentice because they take pride in their work and like to show them. And the others accept them—no problems."

And it was apparent that foremen often took the trouble to discover which tradesmen were interested and competent and tried to place apprentices with them whenever possible:

"We pick the men who do impart the knowledge—usually to younger men."

It is clear then that the problems of explanation did not exist uniformly everywhere. But the comments of employers, instructors, college teachers and training board officials made it clear that lack of time, especially where bonus schemes were in operation, lack of knowledge or the ability to impart it, and lack of interest or of the right attitude did sometimes make explanation by tradesmen less than adequate; and that in some cases the lack of clear definition of who was responsible for explanation when apprentices were working with a variety of craftsmen tended to increase these problems.

It will be recalled that in our discussion of the views of the apprentices, we noted that some of them were aware of exactly these difficulties[2] and that we suggested that the relationships between craftsman and apprentice was the crucial problem area for on-the-job training. This suggestion appears to be borne out by the comments of a number of those responsible for the employment, education and training of the apprentices.

(2) Difficulties of experience: our enquiries suggest that breadth of experience could apparently be restricted in two ways. The first had to do with the range of work undertaken in the particular firm where the apprentice worked. We reported earlier that the engineering apprentices in particular tended to feel that their place of work did not offer them a sufficiently wide experience. This opinion was not shared by their employers. Only one out of the 48 employers and managers in the engineering study admitted that apprentices in his firm gained only a limited experience, while 33 claimed that the variety of work done in their establishment offered a wide experience. However the contact which college teachers had with apprentices from various firms in both studies led a number of them to comment on the lack of breadth and variety in the experience of many boys. From this perspective some felt it would be useful to apprentices if they were able to move around different types of employment in the course of their apprenticeships in order to broaden their experience:

"A boy who starts in a small place should move during his apprenticeship, otherwise he's not a real electrician."

"It's a good idea to be in different kinds of companies."

[2] See pages 39-40.

"It's quite good to move around during apprenticeship. You can get to 25 and know nothing but Ford or something."

A second restriction could arise from the kinds of tasks which apprentices were given or allowed to do, and the way apprentices had to fit in with the requirements of production and work organisation in the firm. Older apprentices in particular were, of course, used for productive work in nearly all the firms. Only four employers in the engineering study claimed that their apprentices were supernumerary throughout their apprenticeships. The nature of their involvement in productive work and the extent of any limitation in their experience because of this involvement varied between firms and industries. We have seen that most of the motor vehicle apprentices were working on their own by their third year, if not earlier. That a good proportion of the productive work of many garages was done by apprentices is shown by the fact that in most garages the number of motor mechanic apprentices was not far short of the number of skilled mechanics, and in approximately one-third of the garages there were more apprentices than mechanics. One owner of a medium-sized garage explained the position frankly:

"Unfortunately the overheads of a garage are not covered by employing tradesmen. After paying their wages there is little left out of what the customer pays. So the only way to make things pay is to employ third- or fourth-year apprentices."

While it was maintained by the Scottish Motor Trade Association and others that "nowadays an apprentice is *not* cheap labour any more," it is nevertheless clear that if there were apprentices in a garage it was in the employer's immediate interest to use them for as much productive work as possible.

A similar situation existed amongst electrical contractors undertaking repair or installation work. In this type of work apprentices were often required to act as assistants or mates for the skilled men:

"We need the apprentices to help the men. We can't send two men on a job—it's too costly."

"There's certain jobs it wouldn't pay you to have two men doing that kind of job—wiring—pulling wires through, etc."

And one manager assured us:

"We get a lot of work out of our apprentices—they pay their way."

In addition to direct productive work, however, it appeared that in a number of firms apprentices were required to do a variety of

unskilled or menial tasks which no-one else was employed to do. Sometimes it was simply the less skilled jobs, as two engineering employers explained:

"There are some jobs which it wouldn't pay to put time-served men on."

"We use apprentices on stock jobs—some of the menial jobs which are not really skilled men's work."

But sometimes it was the more menial tasks or tasks not directly connected with their trade. One contracting employer admitted:

"They're handy as skivvies at an early age, at a later stage they are frequently aids to the tradesmen."

And a structural engineer explained that:

"If we could get plenty skilled men we would still take on apprentices because you can't use skilled men to do menial tasks in a company. Most people use apprentices for this."

While a man with responsibility in a motor firm's training centre complained that:

"Often they're just sweeping up. One boy was in the office for a year, before that he was sweeping up, etc. His apprenticeship was a total disaster!"

If apprentices are used to any large extent for unskilled or menial work this will clearly restrict the range and depth of experience they gain in the work of their trade. But even if they are kept on skilled work their experience with the firm may be limited because the requirements of production make it difficult or impossible to plan a balanced programme of work experience. We have seen that few of the apprentices themselves were aware of any plan or programme in connection with their experience in the workshops, and this position was largely confirmed by their employers. Motor engineers mostly spoke of the difficulty or impossibility of operating a pre-arranged programme of work-experience in the situation where no one knows from day to day what work is going to come in. Only 14 of the 49 claimed that they made some deliberate attempt to ensure that apprentices gained the necessary variety of experience. Eleven of these 14 were in larger establishments where the volume of work was greater. In the engineering study, the Electricity Board managers spoke of the Board's plans for systematic experience on-the-job, although five of the 17 referred to the difficulties of

operating such a plan in practice. Only eight employers in the 31 other firms indicated that there was any systematic plan for work experience for their apprentices, and none of the eight was in a small firm with less than 100 employees. Firms in which skilled men were employed on maintenance and repair work faced a particular difficulty in this respect. Much of the work arose as a result of breakdowns in machinery, which meant that it could not be planned in advance. Apprentices' experience depended to some extent on what machinery or parts of the plant happened to break down. As a power station manager explained, "In all an apprentice's time a turbine may not be opened up."

There are, then, difficulties in connection with the provision of systematic and varied experience for apprentices on-the-job. This is not to suggest that all or even most of our apprentices were receiving inadequate or too narrow an experience, or that no attempts were being made to ensure a broad experience. Our purpose is rather to indicate that our respondents made it clear that there were problems in this connection—problems which arose sometimes from a lack of variety of types of work undertaken by the particular firm, and more frequently from the pressures of production, the types of tasks which apprentices were given to do and the difficulty of planning experience amidst the requirements of the workshops. We may add that this is consistent with what the apprentices themselves had said: many of them, particularly in the engineering group, complained of lack of breadth in their experience,[3] and few were aware of any plan for their training or experience on-the-job.[4]

It is, of course, partly because of problems of this kind connected with both explanation and experience on-the-job that emphasis has been placed in recent years on training off-the-job. Our enquiries amongst apprentices, employers and trainers suggest that there was a large measure of satisfaction with training centres and off-the-job training, thus indicating that this has been a successful answer to some at least of the problems inherent in traditional on-the-job training. Nevertheless, as we have already indicated, everyone whom we spoke to still believed that on-the-job training had an important part to play in apprenticeships; apprentices themselves were keen to be involved in the real life situation; employers wanted boys to have direct experience of industry; and even those involved in off-the-job training assessed its importance with reference to the

[3] See page 43.
[4] See page 44.

requirements of the workshops. If, then, there are difficulties connected with on-the-job training, the answer, from the point of view of the participants in apprenticeship, cannot lie in removing training from the workshops altogether. The setting up of off-the-job training does not do away with the problems of on-the-job training.

Are there, then, any possible ways of overcoming these problems emerging from our enquiries? One method of trying to improve on-the-job training, is to establish a closer link between on-the-job and off-the-job training. As things were, there was a strong feeling amongst training centre instructors that the two types of training did not fit well together. (Only three said they seemed to fit well together, 12 said they did not, and seven that it varied). Some of the instructors also complained that they did not know enough of what kind of training boys received on-the-job:

"I've never heard anything about on-the-job training—we get no feedback."

"I asked to go out and see what they do in on-the-job training, but I wasn't allowed."

Others believed that it would help to overcome the problems of training in the workshops if training centres, possibly in the person of one instructor, were to keep contact with apprentices when they left and monitor their progress in the workshop:

"There needs to be someone who checks on what they're learning. I'd like to see someone appointed from here to report back on the boys."

"There should be a follow up from the training centre for two years while they are in the power stations."

"There should be a closer relationship between local managements responsible for training and instructors at the training centre."

It should be said that group and company training centres are increasingly trying to establish this kind of link with on-the-job training. Within our studies there were various attempts to regulate the types of experience which apprentices received by issuing programmes of work and methods of recording the experience of each boy. Elsewhere such regulation is attempted by training boards, particularly by means of the module system. Such attempts are no doubt useful and will make some contribution to overcoming the haphazard nature of on-the-job experience. Our contacts with various respondents suggest, however, that the pressure of production

requirements in the workshop and the limitations imposed by the kind of work available will continue to make it difficult in many cases for firms to carry out recommendations about on-the-job training. And if outside agencies insist that companies carry out programmes of training involving planned experience, it is often possible for companies or foremen to fill in the necessary report cards, even if the work was not actually covered by the apprentice. Numerous examples of this came to our attention during the course of our enquiries.[5] Thus programmes and monitoring systems of this kind, while they will doubtless bring about some improvement in on-the-job training, are not likely to get to the roots of the problems.

If the industries and workplaces which we looked at in these case studies were at all typical of others, then the real problems of on-the-job training arise from two sources. The first is a problem of inadequate explanation and it arises out of the uncertainty and problematic character of the relationship between the craftsman on the job and the apprentice. The second is a problem of insufficient breadth and depth of experience and it arises out of the pressure of production and the kind of tasks which apprentices are expected to do. We cannot hope as a result of our studies to be able to put forward fully worked out proposals for overcoming these problems. We did, however, come across two suggestions which, if implemented, would go some way towards dealing with them.

The first suggestion is that a certain number of tradesmen in a workshop should be selected and trained for the work of demonstrating and explaining the work of the trade to apprentices. These would need to be men who had an interest in young people and the basic ability to communicate. A brief training in the skills of demonstration and explanation would be added. Thereafter they would be the men to whom apprentices were assigned, if possible for a reasonable length of time. Some financial recognition of their position and responsibility as craftsmen/instructors would be necessary, and in workshops operating a bonus system there would need to be an arrangement to ensure that they suffered no loss. Courses for training craftsmen are, of course, already available.

[5] An interesting illustration of the attitude of people in some firms towards outsiders connected with training is provided by the occasion when an interviewer called to see the fleet engineer of a transport firm. Afterwards, he had a brief word with George, an apprentice, who said he was being moved systematically round six departments, spending a month in each. Later George was interviewed when he returned to his training centre, and the first thing he said was: "See what I told you about moving round different departments. It was all a lie. The foreman told me to tell you that. I was in the same department all the time."

Within the orbit of our studies the Road Transport Industry Training Board hold brief training courses for final-year apprentices and craftsmen to help them train apprentices; and the Engineering Industry Training Board conduct courses within companies to train on-the-job module controllers, and selected craftsmen attend these courses. What is required, however, is not only that such courses be held, but that companies should carefully select tradesmen to attend them, should then adopt a policy of allocating apprentices to these selected and trained craftsmen, and should arrange the work-load and the wage of these craftsmen so that they have the time and opportunity to explain the work to the apprentices. If this were done the problems of apprentices finding themselves beside tradesmen who had insufficient time, interest, knowledge or ability to communicate would be reduced. We found very little evidence, however, that the companies we had dealings with were taking steps of this kind.

The second suggestion is that companies should consider setting up 'sheltered workshops' for apprentices. A 'sheltered workshop' is an arrangement whereby apprentices (especially the younger ones) can do some of the actual production work of the firm but without the pressure or rush that often accompanies the rest of the work and with more help and advice than would normally be available. We have seen that the apprentices were keen to do the actual work, and to get on with complete jobs by themselves, but with someone at hand to advise, to check or to be consulted in difficulties (see page 45 above). The pressures of the workshop often make it difficult to provide for the apprentices' need for advice, explanation, and planned experience, whereas off-the-job training cannot provide the experience of doing the actual production work of the firm. A sheltered workshop within the workplace would provide something of a half-way house between a training centre and full involvement in the ordinary production work. It would give the opportunity for real work experience of a planned and controlled (though perhaps limited) nature with the ready help of a tradesman or supervisor when required. From there the apprentices could graduate to the full work with less need for explanation and help. Clearly such an arrangement would not be possible or appropriate in every kind of firm or workshop. It is, however, being introduced in some motor garages (though not in our study), and the Road Transport Industry Training Board are giving encouragement to the idea. It seems that this might be one other way of overcoming some of the problems inherent in on-the-job training which have emerged from our studies.

Further Education

The final part of the apprentices' learning arrangement is the further education component. All our apprentices attended technical college on a day-release basis for at least the first part of their apprenticeship. We took the opportunity of discussing this aspect of their apprenticeship not only with the boys themselves, but with the teachers responsible for their courses in three colleges, with the instructors at training centres, with the apprentices' employers and others. It is safe to say that in these interviews we encountered very little opposition to the idea of further education. On this point the attitude of the employers was of particular interest. The large majority of employers and managers we spoke to in both studies felt that it was important for apprentices to go to college (Table 16).

TABLE 16

EMPLOYERS' VIEW OF COLLEGE BY SIZE OF FIRM

Motor Vehicle Group

	College Important	College Not Important
Small private garages	11	7
Medium-large private garages	13	1
Heavy vehicle workshops	8	4
Plant fitting workshops	3	1
Total	34	13

Engineering Group

	College Important	College Not Important
1-100 employees	5	7
Over 100 employees	32	2
Total	37	9

Of 46 employers and managers in the engineering study who replied to this question nine said that college attendance by the apprentices brought no benefit to the firm, but only one of these felt that it was a waste of time from the apprentices' point of view as well. The other 37 felt that in varying degrees it was of benefit to the boys and their employers. In the motor study 34 of the 47 employers who responded thought that college was important from the point of

view both of the firm and of the apprentices, though about half of these had some criticism of the way things were done at the colleges. Of the other 13, six felt that college work benefited only the boys, while seven were doubtful about the value of further education, two of these tending to regard it as a complete waste of time. All in all this amounts to a reasonably favourable verdict on further education from the apprentices' employers, though there were slightly more doubts amongst motor vehicle than amongst engineering employers. It is also clear from the table that most of the employers who were not convinced of the value of college work from the firm's point of view were in small firms.[6] Amongst some of the small motor repairers in particular there was a feeling that they could ill afford to lose the services of the apprentice for a day each week:

"We're losing a day a week and up to now there's no great advantage for us."
"It causes some difficulty in small garages with boys being away."

Most employers and managers in both studies, however, thought that it was important for future tradesmen to have a grounding in theory to understand something about *how* things work and *why* things are done, and that this theory and understanding was imparted by the technical colleges:

"To know how it works, craftsmen must have knowledge in addition to craft skills."
"Further education means apprentices know why as well as what."

Some garage managers were particularly aware that motor vehicles were becoming more sophisticated and that developments in vehicles made it necessary to have tradesmen who had good theoretical understanding, and could think through problems for themselves. College was important for this. Electrical contractors were also aware that it was important for their apprentices to go to college to learn the official regulations governing electrical installation work, and were satisfied to have their grading scheme for craftsmen related to the apprentices' performance in further education.

There was, then, as we have said, no widespread antipathy to college amongst the employers we interviewed. And this was the case also with other associated people—representatives of employers' organisations, trade unions and training boards. There was a

[6] This is in line with the conclusion of Ethel Venables and David Lee (Venables [1967], p 96). See also Sweeney (1972) and Ashton (1965).

general acceptance of the importance of further education as a part of apprenticeship.

When we turn to the views of college teachers and training-centre instructors, however, we find two interrelated questions which arise in connection with further education, and it is important to give some attention to these. The first is the question of motivating craft apprentices to learn the theoretical material which is taught at college. The college teachers did not generally feel that most apprentices disliked coming to college (only four out of the 17 interviewed were of this opinion). But when asked about the apprentices' interest in theory only two of them said that they were usually interested or that it was not difficult to arouse their interest in it. Most of the others expressed the view that boys of this kind *could* be made interested in the theoretical aspect, but that this could only be done by relating it directly to something practical. Some teachers approached this by trying to relate the theoretical work to what they knew of the boys' experience in their day-to-day work:

"If we go too far away from day-to-day work they lose interest."
"If you take things which are needed later he's not interested. If you teach outside his job he's not interested."
"If you relate it to something they've worked with, you hold their attention."

Others emphasised the importance of teaching the theory in the context of workshops or laboratory work within the college itself:

"You can do it by laboratory—it gives him time to discover for himself."
"Get him involved! . . . In the workshop I feed certain questions to him and then later take them up in the classroom."

The college teachers realised very well that "the average craft boy" is not interested in theory or classroom work for its own sake. As we have seen in the course of our interviews our craft apprentices were mostly concerned to develop practical skills from which they could derive satisfaction. The teachers had grasped that the way to motivate young people of this kind to learn the theoretical material was to start from the practical, and to bring in the theory in relation to questions that arose or experience they had gained in practical work. Given that some theoretical understandings are important for skilled tradesmen, and given the practical and non-academic orientation of most boys entering craft apprenticeships, it is important

that the general principle of relating theory to practice and approaching the unfamiliar theoretical through the familiar practical should be adopted as widely as possible in the field of apprentice training.

This leads on to the second question that emerged from our discussions, the question of the relationship between education and training. In the minds of the large majority of both college teachers and training-centre instructors the difference between training and further education was that the former was mainly concerned with practical and the latter with theoretical work. If, then, it was agreed that the best approach to theory was to relate it directly to practice, did not the existence of two institutions, one concentrating on the theoretical and one on the practical, cause problems for those involved in them? Our enquiries showed that this was in fact the case. Only a minority of those concerned (five of the 17 teachers and eight of the 29 instructors) felt that the work of college and training centre fitted in well together. The rest were all aware of problems in one way or another. Three types of approach were discernible among them. The first represented by about five of the 17 teachers and perhaps seven of the 29 instructors,[7] was that education and training each fulfilled a different function and should be kept separate. For them the only problem lay in the fact that one group tended to overstep the line and take over some of the functions of the other:

> "I'd prefer college to stick strictly to theory. We teach him to set up tools. . . . This should be left to the training centre." (Instructor)
>
> "There is a clear cut distinction. The trouble is when training people start to dabble with things which haven't got to do with hand skills." (Teacher)
>
> "The training-centre boys are taught theory which is an overlap of our province." (Teacher)

The second approach was represented by the majority, some nine teachers and 14 instructors. They argued that it was not possible to make a clear distinction between education and training, and that there should therefore be a greater measure of co-operation between training centres and colleges. To them the problem was one of trying to get the two institutions to work together, to have greater communication between them, and to plan their work together:

[7] Respondents frequently offered lengthy and diffuse comments on this issue with the result that it was not possible to categorise and count their responses with complete confidence.

"There should be some co-ordination. I can do something in class. If boys have done this in the training centre it begins to make sense. We could work something out between us." (Teacher)

"I like to see a better tie up of the two."

"It would be better if there was direct liaison."

"There should be better communication." (Instructors)

Finally, there were a few who felt that the distinction between education and training was an entirely artificial one, and that it would be better if the work of both was done in one institution:

"I don't think there should be (a difference). . . . We should do training here." (Teacher)

"I prefer the set-up where training is done in college." (Teacher)

"You don't need college. Training centre and practical experience is all you need." (Instructor)

From this it is clear that whatever approach the teachers and instructors adopted, the majority of them felt that there were problems connected with the relationship of off-the-job training centres and further education colleges. This was further indicated by the fact that few of them felt able to say that they really knew what the other institution was doing (five out of 29 instructors and four out of 17 teachers; 17 instructors and four teachers said they had no knowledge, and the rest said they had a partial or very general idea of what was done). It is worth recalling at this point that many of the apprentices seemed to be confused by the existence of two separate institutions and by the difference between education and training. Many of them also expressed the wish for more practical work to accompany the theory they were taught at college.[8]

There has been in recent years an increasing recognition that it is a mistake to keep education and training separate. The discussion paper on vocational preparation issued by the MSC and TSA declared that "vocationally-orientated learning is, however, essentially a single process"[9], and the same point has been made by many others.[10] In addition industrial training boards have been

[8] In our case studies, the situation seems to be rather different from that reported by Kaneti Barry in her evaluation of the EITB craft syllabus. See Kaneti Barry (1974), p 22.

[9] MSC-TSA p 12.

[10] See Venables (1974), p 66; Venables (1967), p 216; Kaneti Barry (1974), p 22, 26; Singer and Macdonald (1970), p 16; Hunter and Robertson (1969), p 40; Central Advisory Council for Education (1959), p 53.

concerned about this problem. Within the orbit of our studies, the Road Transport Industry Training Board has been emphasising integrated training in which off-the-job training is closely related to further education and sometimes done within a technical college. Training within colleges is also being developed by the Construction Industry Training Board. In engineering there has been an emphasis on off-the-job training centres and while the Engineering Industry Training Board has no fixed policy on integration, it tries to arrange that college courses are compatible with the training. In this industry too, however, basic training is sometimes done within colleges.

Our enquiries, within the limited areas of these case studies, indicate that where training centres and further education colleges exist as separate institutions sharing in the vocational preparation of the same apprentices, problems and difficulties are experienced by those involved. There may be other reasons why the two institutions, specialising respectively in 'training' and 'education', should be preserved. But, from the point of view of the perspectives and experience of the participants in the apprenticeship process on which we have concentrated in this study, the division between education and training and between college and training centre seems to create more problems than it solves.

It is important that vocational preparation should not only be efficient but also meaningful for the participants. An arrangement under which college teachers and training-centre instructors frequently do not know what the others are doing, under which teachers often have difficulty motivating craft students towards theoretical learning because they have no involvement in the main body of practical work, and under which instructors often need to introduce theoretical explanations but are inhibited because this is not meant to be their province, must make it difficult for both teachers and instructors to see their work as a meaningful whole and must lead to a measure of frustration. It is perhaps even more important that vocational preparation should be a total experience for the apprentices themselves: that they should see the relation of theory to practice and be able to understand how the various aspects of their learning fit together. From the point of view of the participants there would appear to be no good reason why training and education should be divided in two and conducted in separate institutions. If all off-the-job learning for any particular group of apprentices were united in one establishment in which theory and practice, education and training were combined, this would make for a learning process which would be far more meaningful and

far less confusing for most apprentices. If this in turn were supplemented by attempts to improve on-the-job training by such means as the selection and training of special craftsmen to whom apprentices would be allocated and the setting up of sheltered workshops, the total process of vocational preparation could be experienced by apprentices as a more meaningful whole, and would in this way be more educationally sound.

Length of Apprenticeship

A final point to be considered in connection with the organisation of apprentice learning concerns the question of how long the process should go on. The duration of the apprenticeship period is normally a matter for negotiation and agreement by the parties to the various joint apprenticeship scheme covering different industries. Various considerations therefore affect such decisions apart from the length of time required for effective training. Within recent years the period has in most cases been reduced from five to four years. It is possible to argue that, given efficient training methods, a shorter period still would be sufficient. Our concern, however, is neither with training methods nor with the broad labour market issues involved in the agreements between employers and trade unions over apprenticeships. We are interested in the views on this topic of those involved in the apprenticeship process. We have seen that the apprentices themselves did not generally want a shorter apprenticeship, and that a few of them would have liked the period to be longer. The reason why they preferred a longer rather than a shorter period had less to do with the time needed to acquire skills and knowledge than with the question of when they could be expected to assume the full responsibilities of being a tradesman. When we turn to the views of employers, instructors and college teachers, we find that these did not differ very much from the views of the apprentices (Table 17). The engineering employers were asked to comment generally on the apprenticeship system including the question of the length of the apprenticeship period.[11] Of the 35 who did comment on this, five thought it should be longer, and five thought shorter. Nearly all the others who commented felt that the four-year period was right, and it is probable that those who did not comment were satisfied with arrangements as they were. Similarly most of the instructors and teachers were in favour of the four-year apprenticeships: only one in each group felt the period could be shortened, while six instructors and one teacher favoured

[11] This issue was not taken up with the motor employers.

a longer period. When we add that the representatives of employers' organisations and trade unions were quite satisfied with the present arrangements with regard to duration of apprenticeships, and that the relevant industrial training boards are not actively concerned about this issue, it is apparent that there was a very wide measure of agreement on this topic.

It is worth paying some attention, however, to the reasons why so many wanted the period kept at least as long as it is. Some emphasised that a long period is required if apprentices are to be trained in an adequate breadth and variety of skills:

"You could teach limited skills in a year—but not maintenance skills." (Employer)

"In some cases it's a bit short, if they expect a great variety of work in maintenance." (College Teacher)

TABLE 17

VIEWS OF EMPLOYERS, INSTRUCTORS AND COLLEGE TEACHERS ON LENGTH OF APPRENTICESHIPS

	EN Employers	Instructors	Teachers
Four years is right	24	17	10
Should be shorter	5	1	1
Should be longer	5	6	1
Mixed/Don't know	1	5	5
No response	13	—	—
Total	48	29	17

But the main emphasis was upon the importance of "maturity." It was believed that the responsible nature of craftsmen's work required a level of maturity which could not be acquired in a short period, and which could not be expected of lads of under twenty. The process by which a young person gradually gained proficiency and experience in the work of a trade during the period when he was developing from a boy into a man was felt to be an important one. Over such a period at this stage in life, young people could be moulded not only in terms of their skill and work methods but also in terms of discipline and life in general. This was part of the *raison d'etre* of the apprenticeship system. Comments from employers included the following:

"You couldn't shorten the time—boys are not mature enough."

"With boys you are getting someone who you can mould in

many ways—discipline wise etc. . . . You couldn't really reduce the time."

"You've got to get over the period when the boy is a boy. The apprenticeship system allows him to be half-man, half-boy. The years shouldn't be reduced."

"They're serving an apprenticeship not only as an electrician or something, but in life."

And instructors and trainers echoed the same sentiments:

"You can't teach maturity. Many lads at nineteen are not mature enough."

"It shouldn't be shorter. They're not mature enough to appreciate certain things."

Whether these beliefs represent a wise and realistic assessment of the process of development of young people and the age at which they are mature enough to accept responsibility is not our concern here. Rather we would like to draw attention to two things. The first is that this view of maturity and responsibility broadly coincides with the attitude of most of the apprentices themselves. They did not see themselves as ready to accept the responsibility of being qualified tradesmen until they had served a full four years as apprentices.

The second point is that this belief clearly illustrates the fact that apprenticeship is still widely regarded not just as a means of training young people for skilled work, but as an important social institution which provides for the needs of people in a variety of ways. One way in which it is felt to provide for people's needs is by offering a period of transition between childhood and manhood during which skills can be learned and maturity developed.

With this point we return to one of the main emphases of this study. It appears that the basic features of the apprenticeship system are in keeping with objectives which are important for employers and young people, and are seen by others involved in the process as appropriate and relevant. Apprenticeship, that is to say, is not merely a system for training skilled manpower, but serves certain other purposes for people in society. For this reason it is important that those who are concerned with the improvement of the quality of industrial training, or who are proposing alterations in the arrangements for such training should take account of the needs and objectives of the participants. Such needs and objectives should be respected for their own sake. But even from the point of view

of the needs of the nation and industry for skilled manpower it is necessary to remember that training arrangements which do not fulfil the objectives of participants are unlikely to work efficiently and produce the desired results. Thus, both for the sake of participants in the process and for the wider interest, it is worthwhile paying some attention to the points raised in this study as to ways in which aspects of the apprenticeship system as it currently operates fail to meet these objectives, and also to the suggestions about how apprenticeship arrangements could be adjusted so as to meet these objectives more adequately, within the requirements of efficient training.

Summary

When the views of employers, training-centre instructors and college lecturers were put alongside those of the apprentices, it was apparent that there was widespread approval of off-the-job training. Some employers, however, complained that the needs of their work were being inadequately met by training centres, or that apprentices were being taught unnecessary things. On-the-job training was likewise felt to be an important aspect of apprentice learning, but various problems were reported, particularly by instructors and college teachers. Some of these centred round the difficulty of arranging for adequate explanation to be provided by tradesmen, particularly when a bonus scheme was in operation. Others centred round the difficulty of arranging for an adequate breadth and variety of experience within the workshop, particularly in situations where apprentices are required at an early stage to do production work. Two suggestions for overcoming these problems were put forward by people who were consulted during the course of the study. One was that suitable tradesmen should be selected, trained, and given an allowance of time to supervise and give explanations to apprentices. The second was that apprentices should be given a period of 'sheltered experience' during which they could do the full range of workshop tasks without carrying the full responsibility of tradesmen.

The majority of employers felt that attendance at college was important for their apprentices, particularly for the learning of theory. But doubts were expressed by a number of representatives of smaller firms. The question of the separation of education from training was raised by many instructors and college teachers, as it was by a number of apprentices. There would appear to be good reason, from the point of view of the participants generally, and for

the sake of the motivation of apprentices, why training and further education should be combined.

A final consideration concerned the length of apprenticeships. The majority of all participants favoured an apprenticeship period at least as long as under present arrangements. One of the main reasons for this was that apprenticeship was seen not simply as a means whereby skills can be acquired, but as an arrangement by which young people can grow in maturity to responsibility as well as in skills. Thus apprenticeship should be viewed not only as a means of training but as a social institution which is still important in modern society.

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PART II: OBJECTIVE ANALYSES OF APPRENTICESHIP

7

DEFINING THE PROBLEM

A considerable amount of attention has been paid to factors contributing to success in apprenticeship. On the one hand there has been the industrial outlook epitomised by the work of the National Institute for Industrial Psychology and on the other hand the educational outlook epitomised by the work of Ethel Venables.

In the industrial setting, a great deal of emphasis has been placed on "predicting" performance at work by the use of batteries of tests of cognitive abilities. This work, modelled on a psychometric paradigm, has been concerned to provide a service for industry or, more accurately, for individual employers, through which a large number of applicants for, in this case, apprenticeships can be sorted out into rejects on the one hand and a small group of potential employees on the other.

In the educational setting, a great deal of emphasis has been placed on the ways in which young people adjust to work and its associated further education. Evaluations of how far such adjustments are achieved, following a "social anthropological" paradigm, have been conducted largely by the use of questionnaires and interview schedules, and the main intention has been to enable us to understand why young people react to college in the way they do.

What has been difficult to achieve in the past has been the sort of access to industry and education which would allow some composite view to be obtained of the factors which contribute to success in apprenticeship as a whole, including both its industrial and educational aspects. Few research groups have the access to both industry and education which allows a study of more than individual colleges to be undertaken, yet a study involving such access was viewed by the members of this research group as imperative, because the

"social anthropological" paradigm looks at the wider context in which educational programmes function with a view to describing and interpreting rather than measuring and predicting. It also accepts that instructional systems are subject to much more fluctuation than the traditional model can cope with, while in addition the learning milieux themselves have to be seen as more diverse and complex, setting off unintended consequences.

In the research described in this part of the report an attempt was made to achieve a composite view. The attempt was greatly facilitated both by the good contacts which had been established with colleges in previous researches (Weir 1971 and 1973) and by the fact that an invitation to investigate the totality of apprenticeship came from the managers of the two large training centres (LAGTA and SSEB) involved in the investigation described in Part I. It must be emphasised, however, that the investigation was viewed from the outset as exploratory and confined to the motor vehicle and engineering apprentices in a limited geographical area;[1] in the scant state of our current knowledge anything more ambitious was thought inappropriate.

THE INVESTIGATION

Entry Characteristics

After the populations had been defined consideration had to be given to the nature of the baseline data which should be collected.

Although traditionally tests of attainment and aptitude have been used to determine "potential", the value of non-cognitive tests in explaining "success" at work has been increasingly stressed in the literature in recent years, and has indeed been extensively used in other, more exclusively educational, contexts for some time (Entwistle 1973). For example, the Central Training Council (Department of Employment, 1970) said that while tests of temperament and personality are not likely "to be of great assistance in predicting performance levels in manipulative tasks, they may well have a contribution to make in the prediction of employee adjustment to and satisfaction with such jobs."

[1] Nevertheless, the areas and the industries were selected because, on the basis of the researchers' previous experiences, they were likely to represent a considerable proportion of the variety of apprenticeship in Scotland. By selecting *all* apprentices in a particular representative locality it was expected that some tentative extrapolation of the findings to the Scottish situation would be justifiable.

Work using such measures has been conducted routinely (Eysenck *et al*, 1971), although not without opposition.[2]

Much less controversial was the use of tests of attitudes and motivation. Other data which have been regularly used are biographical information—such as father's occupation, number of brothers and sisters—and information on employment, and performance in school examinations.

Additionally it is recognised that one of the most powerful sources of influence on an apprentice is his place of work. Accordingly, at the first opportunity, a series of questions was drafted which it was hoped would encourage a senior member of staff in each firm to provide information on the firm (its size, the nature of its work, the promotion prospects of its employees, the encouragement given to education and training etc.). Because it was considered that the nature of the motor vehicle repair and that of the engineering industries were different in certain fundamental respects such as size and nature of enterprise, the questions differed between the two industries. The individual items in the inventory were, however, applied to all apprentices of the same firm, since it was considered that the elicited characteristics of the firm had a similar effect on all apprentices.

For the purposes of analysis, another characteristic of firms which was considered to be important was the nature of the training offered to the apprentices. In the opinion of the researchers there were three major types of training offered in each industry (single company off-the-job, groups of companies off-the-job, on-the-job only) and the apprentices were classified accordingly.

On their entering employment (if the employment involved attending a training centre with which contact had been established) or on their entering further education, the motor vehicle apprentices in Lanarkshire and engineering apprentices resident in Stirlingshire and/or attending Falkirk Technical College were requested to complete a questionnaire (Appendix A) and a series of paper and pencil tests or inventories (Gupta 1960, Closs 1976, Likert and Quasha 1948, Eysenck 1964) and, on a subsequent occasion, a large number of the firms employing these apprentices were visited by the researchers in order to obtain the information contained in the workshop inventories (Appendix B).

[2] "In view of the problems, both technical and moral, one must question the wisdom and the morality of using personality tests as instruments of decision in employment procedures. Research must continue, but it should be basic research, defining and classifying traits and discovering how a job applicant's personality relates to the personality he reveals later on a job." (Guion, 1965).

The value of the information gathered is enhanced in some cases and diminished in others by the following factors:

(a) The school performance measure was the number of Scottish Certificate of Education O-grade examinations attempted, not the level of performance in these examinations. (This variant of school performance was chosen because those employers who seek to use school performance as an aid to selection *cannot* use the level of performance since that information is only available in mid-July of each year whereas recruitment to apprenticeship occurs between April and June. The measure used in this research is therefore the only variant of school performance which is operationally defensible).

(b) The items concerned with attitudes were in part derived from items previously used (Weir 1971), and in part were new ones designed to suit the more diverse population covered in this research. (During this investigation the attitude items were operating at the level of a pilot inventory).

(c) The items concerned with motivation were based on the inventory used by Veness (1962), supplemented where necessary by others drawn from the authors' own experience. (Like the attitude items, the items in this pool were also operating as pilot items).

(d) The cognitive tests—APU Mechanical Comprehension Test (Gupta 1960) and Minnesota Spatial Formboard Test (Likert and Quasha 1948) for engineering entrants, and APU Arithmetic Test (Closs 1976) for motor trade entrants—were selected as the most appropriate after a more extensive battery had been evaluated in a previous research (Weir 1973).

Data Reduction

Before the entry data could be used further, it had to be reduced in quantity. There were 40 individual items in the attitude inventory, 41 in the motivation inventory, and over 20 in the workshop inventory. This was too large a number for each item to be evaluated separately and, in any case, the original drafting of the questions had been on the assumption that between three and six major "clusters" of items should emerge from each inventory and that each of these clusters would form a "scale" which could then be used as a predictor.

For the purposes of reducing the data by selecting combinations of items weighted to form composite scales, a principal-components

analysis with varimax rotation was performed.[3] This process seeks to combine variables such that the new composite variables (or principal components) are uncorrelated with each other and account for more of the variance than any other mutually uncorrelated composite variables. The successful use of this technique depends on there being useful linear relationships within the variables.[4] The first principal component is the composite which accounts for more of the variance in the data than any other combination of variables. Following on from this the second component can be defined as that composite which accounts for more of the variance remaining, after the first principal component has been extracted, than any other subsequent component.

Since each successive component is a composite extracting as much of the remaining variance as possible, a small number of components will, it is hoped, extract most of the information contained in the initial set of variables. The fulfilment of this hope is much more likely if there has been a refining of the pool of items (using normal item analysis techniques) prior to the principal components analysis. That was not so in this case: the three inventories were pilot instruments that had been subjected to a minimal amount of prior pruning, and inevitably they still contained a number of items that would have been removed in the event of the inventories being adjusted for use. The presence of a number of weak items therefore made each inventory more heterogeneous in terms of what its items measured and made the discovery of "powerful" scales less likely.

This should however not be taken as implying that any scales which did emerge were useless, but rather that the proportion of the variance which the composites accounted for was an underestimate of the proportion of the variance that would have been accounted for had the less homogeneous items been eliminated from the initial set of variables.

Although the questions in the attitude and motivation inventories were the same for both groups of apprentices, the principal components analyses were carried out separately, on the assumption that while the decision whether to be an apprentice might arise from a number of different attitudes and motivations, the subsequent choice between motor vehicle repair and engineering would be

[3] Using programmes drawn from the SPSS package (Nie *et al* 1975).

[4] A linear relationship implies that the weightings which are applied to the variables combined in a composite variable are equally valid no matter what the levels of score on the original simple variables may be.

indicative of another set of attitudes and motivations. And as has already been explained, the workshop inventory was necessarily different for each industry. It was not however considered necessary to conduct separate analyses for each training type within the two industries since the apprentices did not, by and large, choose a firm for its training but rather chose an industry and then took whatever employment was offered in that industry.

TABLE 18

ATTITUDE COMPOSITES

Group	Scale Number	Title	Sample Item
Engineering	1	Instrumental Attitude	"The only important thing about a job is money"
	2	Hard Work Attitude	"The only way to get on in life is to work hard"
	3	Education Attitude	"I had a good time at school"
	4	Pride-in-the-job Attitude	"No matter what job you do you can take pride in it"
Motor Vehicle	1	Attitude to Authority	"It's who you know not what you know that matters"
	2	Hard Work Attitude	"The only way to get on in life is to work hard"
	3	Self-Sufficient Attitude	"People work better when they are left on their own"
	4	Education Attitude	"I had a good time at school"

The outcomes of these analyses are tabulated in detail in Appendix C. Here a description, including the name of each composite and an indication of the type of question or statement forming that composite, is offered (Tables 18 to 20).

From the items and titles it can be observed that there was a certain amount in common between the apprentices in the two industries and between the industries themselves. The sets of attitude and motivation composites did not, however, explain much

of the variance across all the variables of their respective scales. Much of the variation could therefore be explained as random, lacking in any consistent structure amenable to factor analysis. The workshop composites, on the other hand, accounted for a considerable proportion of the variance, with the size of the work-

TABLE 19

MOTIVATION COMPOSITES

Group	Scale Number	Title	Sample Item
Engineering	1	Opportunity Motivation	"My work should give me a good training for the future"
	2	Promotion Motivation	"My work should give me a chance to be in charge of others"
	3	Working Conditions Motivation	"I should not have to work long hours"
	4	Quality of Supervision Motivation	"My work should give me something to do all the time"
	5	Autonomy Motivation	"I should be allowed to do my work without interference from customers"
Motor Vehicle	1	Working Conditions Motivation	"I should not have to work long hours"
	2	Nature of Workplace Motivation	"My work should be in an efficient organisation"
	3	Opportunity Motivation	"My work should make me feel I am being really useful"
	4	Skill Motivation	"My work should require a lot of skill"
	5	Responsibility Motivation	"My work should make me feel important"

force alone contributing more than a quarter of the variance in both cases.

As far as the Personality Inventory was concerned, some data reduction was also possible. As well as using the basic scales, Extraversion/Introversion (E), Neuroticism/Stability (N) and Social Desirability (L), a number of other researchers (Entwistle 1973) have divided both major scales at the mean score for the population

TABLE 20
WORKSHOP COMPOSITES

Group	Scale Number	Title	Sample Item
Engineering	1	Size and amount of planning	"What is the approximate number of skilled men?"
	2	Valuation of skilled work	"Is there a bonus or other incentive scheme?"
	3	Care taken over recruitment	"How are apprentices selected for employment?"
	4	Outward-looking nature	"Are there likely to be changes in the trade in the next few years?"
Motor Vehicle	1	Size	"What is the approximate number of mechanics?"
	2	Valuation of skill and training	"How are the skill demands of the trade changing?"
	3	Recruitment sources	"How difficult is it to recruit workers?"

being researched to create four groups, Neurotic Extraverts, Neurotic Introverts, Stable Extraverts, and Stable Introverts.[5]

[5] These convenient labels describe various crude types of personality.

A rough and ready description of a test of neuroticism is that it aims to distinguish the excitable and highly strung (neurotic) person from the relaxed and well-adjusted (stable) person. The test of introversion/extraversion, however, aims to distinguish the asocial, abstract-thinking, persistent (introvert) person from the socially stimulated, quick-thinking, flexible (extravert) person.

It is also important to remember that scores on both such scales or tests form continuous scales where the great majority of scores cluster around the middle of the range, and that any dichotomising of them is not only arbitrary but results in separating many individuals who differ little from one another. For practical purposes the labels stable or neurotic and introverted or extraverted are attached to all scores below and above average on each dimension. Furthermore, by combining these two categorisations a four-fold division is obtained as follows:

		Introversion/Extraversion	
		LOW	HIGH
Stability/Neuroticism	LOW	Stable Introverts	Stable Extraverts
	HIGH	Neurotic Introverts	Neurotic Extraverts

Comparison of Entry Groups

In spite of the earlier suggestion that school leavers tend to choose an industry first and a firm second, it would have been surprising if the different types of apprenticeship represented in each industry group had not proved to be different from each other.

While there were no instances, among the many employers involved, of the use of psychologist-designed selection procedures, a number of employers and/or training groups were found to use some systematic procedure involving paper and pencil tests and interviews. Additionally a number of employers had a clear notion of an apprentice stereotype and tried to attract boys who matched this stereotype. And parents and boys placed firms in an order of merit based on factors such as size, reputation and location. These discriminations between firms need not, however, all work in the same direction. It could not be said, for instance, that the best qualified school leavers necessarily sought employment in the larger firms, nor could it be said that all small firms had to take any school leaver who passed by, in the belief that no young man with ambition would seek out their firm.

For example, the Lanarkshire Automobile Group Training Association (LAGTA), which represents a number of employers, many of whom run small enterprises, has a collective policy of seeking out "a high quality of boy" and training him to the highest standard. There is no evidence that it fails to recruit to match this policy.

It was therefore a matter of considerable interest to compare the scores of the various types of apprentice on the different entry measures to see where there were significant differences among boys representing single company off-the-job, group off-the-job and on-the-job only, training situations.

Within the engineering group the NTC apprentices performed significantly[6] less well than the other two groups in terms of the number of SCE O-grades that had been attempted (SSEB=4·3, OTC=4·1, NTC=2·2), in scores on the Mechanical Comprehension Test (Mean scores: SSEB=37·8, OTC=34·2, NTC=30·1), and on the Spatial Formboard (SSEB=45·8, OTC=45·1, NTC=40·3). On the Personality Inventory there were differences on the individual scale for Extraversion (SSEB=16·2, OTC=15·6, NTC=15·6), indicating significantly more extraverted scores for SSEB apprentices,

[6] In this connection the term "significant" indicates a statistically significant difference at better than the 0·05 (or 5%) level, *ie*, a difference that would occur by chance on less than one in every 20 occasions.

and on the composites for personality it was observed that the SSEB group showed a disproportionately high number of Stable Extraverts and a disproportionately low number of Neurotic Introverts when compared with the other two types of trainee.[7]

There was also a significant difference in the average age of boys in the different training types with those firms offering least training of a systematic nature (*ie*, NTC) being willing to accept older boys (SSEB 16y1m, OTC 16y0m, NTC 16y5m).

As far as attitudes were concerned, the training types differed, significantly, on the first "instrumental" attitude (SSEB 28·4, OTC 27·5, NTC 25·6), the more instrumental outlook being indicated by lower scores. On motivation the types differed significantly in the relative extent that they were motivated by opportunity (Scale 1) and by promotion prospects (Scale 2).[8] Although the questions forming these two scales were quite similar the response pattern indicated how they differed. The questions on the opportunity scale indicated that those making high scores on this scale valued jobs where a chance to develop their own skills was offered. Since the technological opportunities were greater in the training-centre firms (OTC) than in the non-training-centre firms (NTC) and greater in the SSEB than in the other two, the boys' motivations were, to a certain extent, matched by their placement. The promotion motivation, on the other hand, related to items which had more to do with career development than with personal development, and here the smaller firms (NTC) where every man could see himself as a potential boss, and the SSEB, whose career ladder was made very evident to all employees and applicants, attracted more boys with a high motivation in this respect than did the large, mainly privately-owned, engineering firms who supported the other training centres and whose promotion characteristics were less evident.

But above all the types differed on workshop characteristics. This was not surprising when the training opportunities were much more closely related to size and type of firm than was the case with our motor vehicle population.

On all four workshop composites there were significant differences between the training situations. The picture that the composites painted was almost identical to the picture an observer on the spot would paint from direct knowledge of the firms concerned. The large firms with planned training were in the SSEB and OTC groups. A high level of skill was more highly valued in the Electricity Board

[7] See page 125, footnote 5.
[8] Scale 1: SSEB 9·7, OTC 9·2, NTC 8·0; Scale 2: SSEB 7·1, OTC 6·1, NTC 7·3.

than in either other large firms or in the many small firms. The selection procedures were much more systematic in the case of SSEB than in either of the other two cases, and as far as innovativeness and outward-looking characteristics were concerned, SSEB apprentices scored higher on this scale than the other two training types.

From the nature of the differences between the types of employer could be inferred many of the differences between the boys. It could be said that the place of employment contributed more to differences between apprentices than any other factor. How far these initial differences persisted was of course the subject of our later enquiries.

A similar set of differences was observed for the different types represented in the motor vehicle population. Although the number of SCE O-grades attempted was smaller, reflecting the lower attainment of motor vehicle apprentices compared with other engineering apprentices, the trend was similar to that found in the engineering group: the firms offering no systematic training (NTC) recruited boys of lower attainment. A similar trend could be observed on the Arithmetic Test (LAGTA 25·3, OTC 31·6, NTC 22·0) where the significantly superior attainment of the OTC group was apparent.

On the Personality Inventory, the difference this time was on the Neuroticism Scale (LAGTA 8·3, OTC 11·2, NTC 11·3) where the LAGTA boys were significantly less "anxious." On the composite Personality measures, this observation was confirmed insofar as a disproportionately high number of LAGTA boys, whether Extravert or Introvert, showed themselves to be Stable as opposed to Neurotic.[9] And with the engineering group, there were age differences (LAGTA 15y9m, OTC 16y1m, NTC 16y5m) with the NTC apprentices again being recruited at significantly higher ages.

As far as attitudes were concerned, there were significant differences on the third attitude (LAGTA 12·5, OTC 11·7, NTC 11·3) where the lower scores indicated less willingness to be supervised in training or work. On motivation the training types differed significantly in their scores on the scales of organisation (Scale 2) and responsibility (Scale 5). The NTC boys (LAGTA 4·0, OTC 3·5, NTC 3·1) were least likely to be motivated by the nature of the organisation they worked for, and the OTC boys, working usually for large firms, were motivated (LAGTA 3·6, OTC 5·0, NTC 3·9) by opportunities to share responsibility. There certainly seemed to have been some analysis made of the nature of different firms when these boys were

[9] See page 125, footnote 5.

seeking employment. Contrary to our finding among engineering employers, however, there was no indication that the smaller motor firms were seen as providing better opportunities to branch out on one's own. The larger firms, with their career structure, were identified as more promising by the more highly motivated boys.

As in engineering, there were significant differences in the workshop characteristics of the three types of employer. The relationship between types of training and size of firm was not uniform however, for the LAGTA training was subscribed to by a large number of smaller firms, and the largest average size of workshop was found in the OTC group. Size did not, however, contribute to views on training in the same way as it did with the engineers. The value placed on training was greater in LAGTA than in the OTC group where, in turn, the value placed was higher than in the NTC group. The differences in workshop characteristics made it less possible to anticipate what systematic association there might be between apprentices and workshops.

Some of the entry data can be used to place all apprentices, and apprentices in these trades, in some sort of historical and comparative perspective. Previous work (Weir 1973) had indicated that the opportunity to study motor vehicle and electrical apprentices would allow the opposite extremes of the range of ability to be studied. The motor vehicle apprentices' Arithmetic Test mean score of 25·7 can be contrasted with a whole school-year group mean of 32·0, while the engineering apprentices' Mechanical Comprehension Test mean score of 33·1 can be contrasted with the same whole school-year group mean of 29·2.

The personality data further confirmed what Venables (1965) had previously observed. Thus, on Extraversion particularly, the motor vehicle and engineering apprentices mean scores of 15·7 and 15·1 respectively differ significantly from the population mean score of 14·1 (Eysenck 1964). The school leavers entering apprenticeship are among the more outward-going of their age group, although how far that is characteristic of all applicants or exaggerated by the deliberate choice of selectors cannot be estimated.

The entry characteristics indicated differences which promised some interesting associations with the outcomes of apprenticeship.

Criterion Problems

While the gathering of entry data was a comparatively simple task given the possibility of contacting sizeable groups of apprentices in colleges and training centres, the ongoing process of data collection

became more difficult as time went on, due to the many possible routes through apprenticeship. Not only do boys take different paths or move at different paces through further education but many leave further education, leave their first employer, leave their first trade. Deciding what measures to take as criteria of "success" in apprenticeship depends, therefore, not only on what the measures may be but also on whether the collection of the information is possible.

The Central Training Council (Department of Environment 1970) has emphasised that in industrial training the criteria for selection for training should relate to evidence of learning and the ability to perform in a practical situation. "However it is clear that . . . criteria for the overall selection decision should include not only training performance but also more long term measures—*eg*, length of stay in company, production records, promotion potential—which may necessarily involve different types of predictors. Perhaps the best example of a training criterion as distinct from an overall selection criterion in craft jobs is the trade test. . . ." That is easily said, but various authors have stressed the difficulty in finding reliable criteria of work performance, and Killcross and Bates (1975) emphasise "the difficulty of obtaining objective measures of human performance, especially in jobs which are not repetitive production tasks. . . ."

This last problem was certainly prominent in this project where the selected occupations were not of a production-line nature. And while the Central Training Council emphasises the trade test, it ignores the voluntary nature of such tests as do exist. The Road Transport Industry Training Board, for example, has in recent years spent much time and effort devising skill tests appropriate for young men at the end of their apprenticeship. We had hoped to include the results of these tests as one of our criterion measures, but the Board was, in 1976, able to cater for only up to half of all the appropriate apprentices and had no authority to enforce attendance, so that, even with the offer of a bonus payment to firms whose apprentices "passed" the test, all places were not taken up. Less than one-third of the motor vehicle group attempted the tests and therefore it was not possible to use the results of these tests as a criterion measure. (Similarly, no effort had been made amongst those other engineering trades from which apprentices had been sampled to attempt this sort of measurement).

An additional problem is that there are many competencies involved in "success" in apprenticeship. Success in college, success in training, success in the job, success in the eyes of supervisors and

workmates, are all different. We had to attempt to measure all of these, although, as has already been noted, the measurement of success in the job did not get off the ground. We also had to attempt to measure some of the competencies at different stages in apprenticeship.

The question of time was reasonably easily resolved. In most craft apprenticeships the pattern is for an initial year of training and further education (often integrated) to be followed by two (or three) years of additional on-the-job experience supported by some off-the-job training and further education. It was therefore decided to collect data, on as many criteria as possible, at the end of the first year and the end of the fourth year of employment.

At the end of the first year, some training scores were available, at least from the largest groups, and most of the apprentices in each industry attempted a common City and Guilds examination (Engineering—C & G 200; Motor Vehicle—C & G 380) at college. These were the intermediate criterion measures.

At the end of apprenticeship, training marks were not generally available but a crude three-point index of attainment in college was applied: (1) completing, in not more than four years, what was the basic three-year City and Guilds course; (2) continuing in college until the fourth year but failing to complete the basic three-year course within three years; (3) discontinuing college attendance before the end of the fourth year and without completing the course. At that stage, supervisors' ratings were also obtained. Some initial discussions were held with supervisors and managers as to what attributes denoted the successful apprentice and a pilot inventory was administered with respect to the group of apprentices one year ahead of our group. As a result of these discussions and experiments it was found that a straightforward 1 to 5 rating on six dimensions—practical work, job-knowledge, adaptability, attitude to work attitude to authority, potential (Appendix D)—was all that was possible.

Furthermore, factor analysis indicated that a uni-dimensional scale existed in the ratings of these six attributes so that the criterion became simply the sum of the six ratings.

However, "success" could also be thought of as persistence: the successful apprentice is one who stays the course. Criterion measures relating to this aspect of performance were accordingly formed.

In the first instance it was thought desirable to compare apprentices according to the year of training in which they left the trade, if

they left at all, and this became one criterion. Then it was thought desirable to compare those who left the trade with those who simply left college or training centre but stayed in the trade, and this became a second criterion. And finally, it was thought desirable to compare those who finished up with their initial trade or employer with those who did not, and this became a third criterion of "persistence."

The criteria of "persistence" were the best that could be achieved given the variety of training schemes, of employers and of college courses, although evidence was also sought on how far the different measures were related to one another.

Summary and Conclusions

The investigation reported here should not be seen as unique in its nature. Some similar objective analyses using only cognitive tests are reported by the National Institute for Industrial Psychology (Frisby *et al* 1959). The report concluded from analyses of the results of apprentices in individual firms: "A marked relationship between performance on the tests and achievement at the technical college was shown . . . the evidence of the supervisors' ratings, meagre as it is, at least points to the conclusion that the tests are useful in this respect also. The importance of factors other than the abilities measured by the tests in the degree of academic success achieved by the apprentice was made very clear from the inquiry."

Motivation and personality have been, in their turn, investigated for their usefulness by Eysenck *et al* (1971) who reported statistically significant correlations, for a homogenous group of trainees between, on the one hand, Neuroticism, and on the other, practical performance, college marks, and supervisor ratings.

It is therefore highly likely that some associations between apprentice characteristics and "success" in apprenticeship can be observed in any systematic study.

The investigation introduced here, however, is unique in the number of different factors associated with "success" which were measured. This investigation went, moreover, beyond other work in the extent to which it tried to take account of different workshop environments and training systems.

The entry characteristics which have been reported make obvious the heterogeneity of characteristics present in boys entering apprenticeships in any one industry. So heterogeneous are they that it is difficult to imagine that any sorting out or matching of aspirants and jobs has taken place, except on a very superficial level.

Whether a study of this sort, making use of statistical techniques, can go any way to improving the identification of types of boy who can benefit from certain types of employment or training, is however questionable. The immediately preceding section of this chapter, discussing criterion measures, has made it clear that the basic problem lies in establishing reliable and valid criteria and in eliciting the relationships among them.

Of course the Central Training Council (1970) is correct: "Personnel selection is the process of ensuring that the people who move into particular jobs are those of the available candidates who are most likely to be satisfied with and successful at the work. These people should represent in terms of human resources the optimal mix of initial skills and potential to continue learning. Thus selection for training is that part of the process whereby predictions and decisions are made concerning those who will respond most effectively to induction and job training."

The next two chapters attempt to demonstrate whether it is possible to identify those "most likely to be satisfied with and successful at the work."

8

DOING WELL

The difficulties experienced in defining "success" in apprenticeship have been outlined above. It was particularly emphasised (p 129) that the extent of these difficulties was increased by the decision to use the trade as the principal unit of analysis and the training provision as the secondary unit rather than the college or the firm as the principal unit and college course as the secondary unit. This increased the number of factors likely to affect performance, but did not deflect the research from its declared intention since one purpose was to find out whether the factors affecting the performance of apprentices, irrespective of college, course and firm, could be identified.

Nevertheless it was also decided to attempt to illustrate the nature of "success" not simply by tracing relationships between the criteria of success and the two main units of analysis (the trade and the training), but by tracing the same relationships within the main branches of the trades under investigation. These main groups were light vehicle mechanics (n=130) and electricians (n=78). It was not considered appropriate to use the individual firm as a unit of analysis because, although there were a number of enterprises represented in the population which each engaged a considerable number of apprentices, in almost no case was there more than a handful of boys working under one regime in respect of either course or supervisor. The nature of the main branches of the trades which were focussed on was such that apprentices often worked on their own or in small groups. In this they stood in contrast to some types of mechanical engineering apprentices who were more likely to work in large workshops.

If, then, the attempts to elicit, in particular, reliable supervisor ratings of workshop competence were to be successful, the fact that the amount of variation even within firms was potentially as

great as the variation across firms was unlikely to produce any more difficulty.

In situations where the effects of workshop variables could not be legitimately assessed (where all apprentices attended a training centre rather than being trained at their place of work) such variables were not included in an assessment of training success. In the other, more relevant, situations, however, an analysis of training success was made firstly with the workshop factors included as separate variables, and then with them excluded. This strategy was adopted because the earlier analysis of entry characteristics had indicated that training opportunities were strongly associated with size and type of firm. Any analysis which used training provision and size and type of firm as separate variables was therefore in danger of giving double weight to what was essentially the same factor. By examining the two similar analyses it was possible to estimate how far training and size and type of firm could both be allowed to contribute to the explanation of training success.

Techniques of Analysis

The performance criterion variables used in this study were of two main types, interval (as a scale of temperature might be) and ordinal (as the classification of social class might be). Techniques of analysis have to take these differences into account so that the statistical procedures used in connection with the criterion variables of first-year performance and workshop competence (interval variables) must differ from those used for the analysis of whether the course was completed, when any change of trade, job, etc., occurred and what the reason for that change was (ordinal variables).

It is worth noting, however, that some authorities argue that interval statistics are powerful enough to cope with ordinal situations.[1]

In practice this means that the techniques used most consistently in the attempt to combine associated variables have been stepwise multiple regression analysis and discriminant function analysis,[2]

1 "Although some small error may accompany the treatment of ordinal variables as interval, this is offset by the use of more powerful, more sensitive, better developed, and more clearly interpretable statistics with known sampling error" (Labovitz 1970). Other researchers have tended to follow this assumption with regard to the predictor variables (so as to include as much information as possible in the search for factors associated with "success"), but have retained the traditional differentiation of ordinal and interval statistics as far as criterion variables are concerned.

2 Both performed using programmes drawn from the SPSS package (Nie *et al* 1975).

although analysis of variance, product-moment correlation, and chi-square techniques have also been used where appropriate.

Multiple regression is a key technique in this type of research for analysing the relationship between a dependent or criterion variable (such as workshop competence or first-year performance) and the various independent or predictor variables described in the previous chapter. It depends on two assumptions—that the variables are measured on an interval or ratio scale and that the predictor variables have a linear relationship to each criterion variable.

A major purpose of multiple regression is to obtain a prediction equation which indicates how scores on independent variables such as Verbal Reasoning Quotient, father's occupation and number of siblings could be weighted and summed to give the best possible prediction of a dependent variable such as, for example, school examination success in a sample of pupils. At the same time, use of this technique provides statistics to indicate how accurate the prediction equation is and how much of the variation in the dependent variable is accounted for by the independent variables.

This, then, is the technique used with the dependent, *interval*, variables of workshop competence and first-year performance.

Discriminant analysis is another key technique, but one with a different function, namely, to distinguish statistically between two or more groups of cases. To employ it, one first selects a collection of variables that measures characteristics on which the groups which one wishes to distinguish between are expected to differ.

The discriminant function that is produced thereafter is a linear one. Each variable incorporated in it is given an optimal weighting such that the single composite score that can be obtained from it for each individual can be used as a means of identifying further cases which can be added to each group. (Variables can be added to the discriminant function in a stepwise fashion and tests applied at each step to ascertain whether the function has been significantly improved by the addition). Since the discriminant function is calculated in the first instance in respect of individuals whose group membership is *already* known, the number of misclassifications can be ascertained. When the function is applied to individuals from the same population[3] whose group affiliation is unknown, the number of misclassifications is, of course, unlikely to fall below this level.

Because the weighting applied in the discriminant function to each

[3] The "population" is the group from which the sample used in deriving the function was itself randomly drawn.

(standardised) variable can be interpreted as a measure of the relative importance of each of the variables in discriminating between the groups, it is possible to use the discriminant function technique as a means of identifying characteristics of persons in those groups.

This, then, is the technique used when the criterion variables were of an *ordinal* nature (such as, whether the course was completed) and also with all the criterion variables relating to change from original trade which are the focus of the discussions in the next chapter.

First-year Performance

During the first year of apprenticeship most (71% and 74% respectively) of the boys in the motor vehicle and engineering groups were involved in the appropriate, integrated, industrial training and further education recommended by the relevant industrial training boards, though there was one difference between the groups in that in the road transport industry this integrated programme lasted for approximately half a year, while in the engineering industry it lasted for almost a whole year.

In both industries, therefore, there was a certain uniformity of provision. Within each training group the training followed a common pattern, irrespective of the eventual specialist job which any apprentice might hold. Similarly, almost all the apprentices, whether attending off-the-job training or not, attempted the appropriate City and Guilds course at college, which they attended on a day-release basis. Nonetheless, in addition to the differences between the groups in respect of length of training, there was a difference in the form of college assessment. In the motor vehicle course there was continuous assessment giving a cumulative score based on a series of craft knowledge tests and practical investigations undertaken during the college year, whereas in the engineering course there was one final assessment based on written examinations.[4]

Each of the large training centres (SSEB, LAGTA and the National Light Metal Trades Group—whose apprentices were in the OTC engineering category) used a modular form of training and considered that continuous assessment within and across modules was the most appropriate method for providing relevant information on apprentice progress. Each centre kindly made these continuous assessments available. As training and education were fully integrated in the

[4] The final score in both cases could nevertheless be treated as an interval scale, as could the total of marks obtained from the performances in training tasks.

LAGTA and SSEB cases (where full co-operation had been obtained from the neighbouring colleges of further education) it was possible to compute an additional measure for their apprentices. This measure was a combination of the standardised training and college scores, each weighted according to the time devoted to them in the course of the first year. (For example if, at LAGTA, training lasted for 80 days and further education for 40, then the two components in the combined measure were weighted in the ratio 2:1).

Preliminary analyses of these outcomes have been reported in our Interim Report (Weir and Ryrie 1973) where the relative importance of the various categories of predictor variable was made clear. In this final report, certain information (the Motivation and Workshop composites) which was not available for analysis at the time when the Interim Report was written has now been entered into the analyses. At the same time, however, certain information has been dropped from the analyses, mainly that which was available only for one particular type of training situation. In addition, the analyses have not, on this occasion, taken account of the presentation of apprentices for individual SCE O-grades. Instead the summary variable of number of O-grade presentations was used on the grounds that this, in our experience, was the type of information used most often by employers of craft apprentices. The new analyses (Tables 21 to 26) are therefore complete and comparable in a way that those in the interim analyses were not.

These tables present the usual stepwise multiple regression coefficients (in a range from 0 : no association, to 1 : perfect association) for the variables which are listed in order, according to the order of their introduction to the predictive equation.[5] In addition, for each variable an indication is provided of the significance of its own *individual* contribution to the equation. It should be noted, however,

[5] In work of this type, the researcher decides in advance on the minimum level of statistical significance which he will accept. (In this case, because the work was seen as exploratory, it was decided to include any variable which was significant beyond the 0·1 level. This low reliance-standard means that once in every ten occasions a particular variable would be included as significant due to the characteristics of the sample rather than due to characteristics of the population from which the sample was drawn.) With the minimum significance level established, the statistical routine then places as first variable in the list the variable most highly correlated with the criterion and significant beyond the pre-determined level. The next variable to be included, however, is not that with the next highest correlation, but the one which makes the greatest *additional* contribution and is statistically significant, after the first variable's contribution has been taken account of. The routine proceeds in this fashion (the third variable making the highest individual contribution after the first two have been accounted for, etc.) until all significant variables have been included.

TABLE 21

PREDICTORS OF FIRST-YEAR COLLEGE SUCCESS
(with multiple regression coefficients)

	Engineering*					
	All (n=105)		SSEB (n=68)		OTC (n=30)	
	Mechanical Comprehension Test	0·530‡‡‡	Mechanical Comprehension Test	0·395‡‡‡	Number of O-grades Attempted	0·539‡‡‡
	"Instrumental Attitude	0·603‡‡‡	Extraversion Scale	0·436‡‡	"Instrumental" Attitude	0·689‡‡‡
	Number of O-grades Attempted	0·650‡‡‡	"Conditions" Motivation	0·477‡	Spatial Formboard Test	0·739‡‡‡
	"Supervision" Motivation	0·683‡‡‡	Father's Occupation	0·504‡	Mechanical Comprehension Test	0·787‡‡
	"Autonomy" Motivation	0·694‡			Age	0·823‡
	Extraversion Scale	0·705‡			"Autonomy" Motivation	0·847‡
% of variance explained ($R^2 \times 100$)		49·6		25·4		71·7
F value		16·11		6·29		9·72
p		<0·01		<0·01		<0·01

* The number of NTC apprentices attempting the appropriate examination was too small for analysis.
‡‡‡ Significant at better than the 0·01 level.
‡‡ Significant at better than the 0·05 level.
‡ Significant at better than the 0·1 level.

TABLE 22

PREDICTORS OF FIRST-YEAR TRAINING SUCCESS
(with multiple regression coefficients)

	Engineering			
	SSEB (n=67)		OTC (n=36)	
	Age	0·289‡‡	Neuroticism Scale	0·606‡‡‡
	Father's Occupation	0·354‡	Spatial Formboard Test	0·770‡‡‡
	"Pride" Attitude	0·374‡	Number of O-grades Attempted	0·810‡‡
% of variance explained ($R^2 \times 100$)	14·0		69·0	
F value	4·59		17·27	
p	<0·01		<0·01	

‡‡‡ Significant at better than the 0·01 level.
‡‡ Significant at better than the 0·05 level.
‡ Significant at better than the 0·1 level.

TABLE 23

PREDICTORS OF OVERALL FIRST-YEAR SUCCESS
(with multiple regression coefficients)

	Engineering	
	SSEB (n=67)	
	Father's Occupation	0·332‡‡‡
	Mechanical Comprehension Test	0·463‡‡
	Age	0·529‡‡
	Extraversion Scale	0·592‡‡
	"Pride" Attitude	0·649‡‡
% of variance explained ($R^2 \times 100$)	42·2	
F value	5·98	
p	<0·01	

‡‡‡ Significant at better than the 0·01 level.
‡‡ Significant at better than the 0·05 level.
‡ Significant at better than the 0·1 level.

TABLE 24

PREDICTORS OF FIRST-YEAR COLLEGE SUCCESS
(with multiple regression coefficients)

	Motor Trade			
	All* (n=165)	LAGTA (n=88)	OTC (n=27)	NTC (n=50)
	Number of O-grades Attempted 0·396‡‡‡	Arithmetic Test 0·422‡‡‡	Number of O-grades Attempted 0·599‡‡‡	Age 0·366‡‡
	Neuroticism Scale 0·451‡‡‡	Neuroticism Scale 0·453‡‡	"Opportunity" Motivation 0·759‡‡‡	Number of O-grades Attempted 0·456‡‡
	Extraversion Scale 0·467‡	Extraversion Scale 0·502‡‡	Age 0·794‡‡	"Workplace" Motivation 0·505‡
			Arithmetic Test 0·823‡‡	
			"Self-Sufficient" Attitude 0·870‡‡	
% of variance explained ($R^2 \times 100$)	21·8	25·1	75·7	25·5
F value	14·93	9·33	13·09	5·26
p	<0·01	<0·01	<0·01	<0·01

‡‡‡ Significant at better than the 0·01 level
‡‡ Significant at better than the 0·05 level
‡ Significant at better than the 0·1 level.

* An analysis including Workshop Composites brought Workshop Composite 2 into the stepwise regression and raised the multiple correlation to r=0·501.

TABLE 25

OTHER ANALYSES OF FIRST-YEAR SUCCESS
(with multiple regression coefficients)

	Motor Trade	
	Training Performance (LAGTA) (n=71)	Overall Performance (LAGTA) (n=71)
	Arithmetic Test 0·431‡‡‡	Arithmetic Test 0·514‡‡‡
	Neuroticism Scale 0·496‡‡‡	Neuroticism Scale 0·561‡‡‡
	Extraversion Scale 0·558‡‡	Extraversion Scale 0·613‡‡
	"Self-Sufficient" Attitude 0·583‡	
% of variance explained ($R^2 \times 100$)	34·1	37·5
F value	8·53	13·41
p	<0·01	<0·01

‡‡‡ Significant at better than the 0·01 level.
‡‡ Significant at better than the 0·05 level.
‡ Significant at better than the 0·1 level.

that the coefficients beside each variable do not show the correlation of that variable with the criterion but represent the weighted (multiple) combination of variables, *up to and including* that particular variable.

TABLE 26

SCORES IN FIRST-YEAR COLLEGE EXAMINATIONS FOR SPECIFIC GROUPS
(with standard deviations in brackets)

*Engineering**	SSEB (n=69) 3·2 (0·9)	OTC (n=31) 4·6 (1·2)	NTC (n=10) 5·3 (1·1)
Motor Vehicle	LAGTA (n=98) 282·8 (33·7)	OTC (n=29) 274·7 (48·7)	NTC (n=52) 254·8 (37·9)

* City and Guilds "band" marks, ranging from 1 (high) to 8 (low).

In addition to the information on each variable, the final lines in each table indicate the proportion of the variance on the criterion attributable to the list of predictors, and the F value and significance level of the whole regression equation.

Although there are certain differences between the list of variables and the values of the multiple regression coefficients when compared against the comparable information in the Interim Report, the implications of the tables are broadly similar.

A satisfactorily high range of multiple correlation coefficients has been obtained. The range of coefficients (0·37 to 0·87) compares very favourably with those quoted by NIIP (Frisby *et al* 1959), especially when account is taken of the variety of firms represented in most of the samples of apprentices. Of course the NIIP figures improved when account was taken of the restriction in range of scores due to the tests being used as part of a selection study. Such a correction to the coefficients was not as appropriate here where the tests used in the analyses had not also been used formally in selecting the apprentices who comprised the research population. Killcross and Bates (1975) provide a necessary corrective to any excessive self-congratulation in this respect: "Where a selection study deals with a restricted group the effectiveness of selection will usually be underestimated; the wider the range of trainees accepted the more effective will selection apparently be."

The tests used did, nevertheless, account for a considerable proportion of the variance in first-year performance, and a good measure of the explanation of that performance was contributed by the non-cognitive variables. While a study using only cognitive measures would undoubtedly have been possible, more of the variance would have been left unexplained, as happened in the NIIP study. In this case, however, the non-cognitive measures increased the quality of the explanation, and were particularly useful in indicating what the differences were between college and training-centre assessments, types of trade, and types of training provision, although it is interesting to note the workshop composites only affected the regression coefficients on one occasion. As apprentices were almost all being trained off-the-job in the first year, this is not surprising.

In both groups, there is some evidence to support the contention that systematic training improves the absolute and relative performance of those receiving it. In both groups, the performance at college (Table 26) of the boys from the largest training centres was superior to that of any other type of apprentice, and in both cases

the spread of scores (standard deviation) was smaller among boys from the largest training centres.[6]

This second finding is relevant to the study in so far as it indicates a possible effect of training—the ability to raise the performance of poorer entrants nearer to the average performance. The lower multiple correlation between predictors and criterion which was observed for the largest training centres (LAGTA and SSEB) when compared with the equivalent correlations for the other training types could also be attributed to the same phenomenon.[7]

No satisfactory explanation can be offered, however, for one particular case—NTC trainees in the motor trade group—where the multiple correlation between predictors and first-year college success was no higher than the multiple correlation observed for LAGTA trainees.

Where the higher correlations have been observed, it is reasonable to conclude that a clear association exists between the predictors and the criterion. Where lower correlations have been observed, therefore, there are at least two plausible explanations: (1) that little association exists between predictors and criterion, or (2) that the training course has been effective in changing the performance of a number of trainees in such a way as to restrict considerably the

[6] Certainly, in the case of the engineering group, the apprentices in the largest training centre scored higher than the other two groups on the intake measures (p 128) and therefore part of their superior first-year performance would have been due to this. In the case of the motor vehicle group, however, the LAGTA entry scores were not the highest (p 126) and much of their first-year superiority is therefore apparently due to the effectiveness of their training.

[7] The size of error in a correlation coefficient (*ie* the difference between the coefficient obtained for a sample and that which would be found in the population from which the sample is drawn) is, however, related to the number of observations on which the coefficient is based. The standard error of a multiple correlation is $\frac{1-R^2}{\sqrt{n-k}}$ (where k is the predictor variables included in the regression equation) and for a simple correlation is $\frac{1}{\sqrt{n}}$.

(To illustrate how these standard errors are used in practice one should note that a simple correlation based on 100 pairs of observations need only exceed 0·20 to be significantly different from zero at the 0·05 level whereas, if based on 25 pairs of observations would have to exceed 0·40.) Applying the appropriate statistic to cases of multiple correlations in this chapter, we can say, with at least 95% confidence (*ie*, at the 0·05 level) that the correlation for 88 LAGTA apprentices between the predictors listed in Table 24 and the first-year criterion, is significantly different from zero and is in the range +0·340 to +0·664. Using the same criterion but with respect to 27 OTC apprentices, the correlation coefficient is similarly significant. The range is in this case +0·764 to +0·976.

range of performances and therefore minimise the predictive value of the predictor variables.[8]

The clear-cut superiority of systematic training (Table 26) was especially marked in the motor trade group. While, by comparison with the OTC boys, the LAGTA apprentices had, on entry, sat significantly fewer O-grades and had made significantly lower scores on the Arithmetic Test, they scored significantly better than OTC and NTC apprentices in the City and Guilds course at college, and this, in spite of the allocation to college teaching groups being entirely random, with each class being composed of apprentices from each type of training situation. (Although the SSEB training also produced significantly better college scores, apprentices from that situation were initially more able and were grouped together for teaching at college).

It must certainly be concluded that selection on the basis of probability of succeeding in first-year education and training is practicable. While Killcross and Bates (1975) have indicated that, in their experience, certain types of tests should always be leading contenders for inclusion in a selection battery, they do not conclude that the components of the battery should remain unchanged from situation to situation. It is not incompatible with other research findings that, in this case, different sets of predictors (from the same pool) were found to be most effective in each situation.

Probably the most important variation is that related to industry. Certainly with respect to this total group of apprentices in the motor vehicle industry, school performance and scores on tests of ability alone were less powerful predictors of education and training performance than was the case with apprentice engineers. An examination of the score pattern here, discussions with trainers, supervisors, and managers, and a reading of the evidence from the interviews reported earlier in this book, all confirm the tentative suggestions made in the Interim Report, "(a) that in the motor trade high cognitive ability is not the advantage it might be in some engineering trades and (b) that apprentices in the motor trade are more similar to each other in cognitive abilities than engineering apprentices are." (Weir and Ryrie 1973).

Final Performance

It seems reasonable to expect apprentices, within the first four years of employment, to have reached the end of the third year of

[8] The question of how far correlational techniques are appropriate in selection and training studies will be raised again later.

the appropriate City and Guilds course. A criterion of final college performance (ordinal scale) was therefore devised to take account of the three major outcomes of college attendance:

1. Passed the third-year course;
2. Failed the third-year course;
3. Did not reach the third-year course either through repeated failure or through discontinuing further education.

For a few apprentices who had been transferred to City and Guilds Technician courses, this criterion assumed a higher level of performance than for the majority who, irrespective of their sub-specialist trade, had followed City and Guilds Craft courses of comparable standard.

For all those who had remained in their initial trade, and from whose place of work it was possible to elicit the necessary co-operation, the Workshop Competence composite (interval scale) score was also available for use as a criterion measure of the extent to which supervisors considered apprentices to be performing well. As well as comparing the scores on this scale with the various predictor variables, it was also possible to compare them with the "final college performance" criterion.

For the college criterion, discriminant function analysis was the appropriate statistical technique. The classification function to which this technique can be applied enabled the real outcomes to be compared, in matrix fashion, against the best predicted outcomes derived from the variables in the analysis. The technique is best illustrated as follows:

CLASSIFICATION MATRIX

		Predicted Outcome	
		PASS	FAIL
Actual Outcome	PASS	Correct Positives	False Negatives
	FAIL	False Positives	Correct Negatives

In this diagram, the two different types of error in prediction are clearly indicated. Each subsequent discriminant function matrix will follow the same style, even where there are more than two outcomes, and in addition the predictor variables which were

significantly associated statistically with the criterion measure will be named, in order.[9]

The stepwise multiple regression coefficients relevant to the workshop criterion will be set out in the fashion described above.

College Performance

In the engineering group, complete information was available on 178 cases and they were therefore used in the analysis. In addition separate analyses were performed for the various training types (SSEB, OTC, NTC) and for all electricians. Separate computations were made of the effect, on the success rate, of predictors including and excluding the workshop characteristics.

The inescapable conclusion was that, in almost all cases, the entry variables made only a very modest contribution to explaining the different outcomes (Table 27).

Although 128 out of 178 cases (72%) were correctly predicted and "significant" results indicated by the statistical tests, one must take into account that if all cases had arbitrarily been predicted "pass" then the 125 (70%) of cases who actually passed would have been assigned to the correct group. The improvement of two per cent in successful prediction between the statistical and arbitrary allocation does not indicate that the predictor variables added much information. In particular, the table indicates an almost total failure of the variables to assist in explaining how boys who failed differed from those who did not reach the final examination.

Similarly disappointing results were observed for electricians, SSEB and OTC, but the relationship between real and predicted outcomes for NTC types was more satisfactory.

In this case 34 successful predictions were made out of a possible 42 (81%) when arbitrary allocation of all cases to the "pass" group would have achieved 25 (60%) successes. The workshop composites relevant to each of these groups of apprentices did not, however, significantly add to the prediction of their college performance.

The variables which contributed to the discriminant functions above could be used to create a stereotype of the successful NTC apprentice: a boy of higher ability, not solely concerned with material reward, less outward-going, not afraid of hard work, and motivated

[9] In this respect, discriminant function analysis operates in the same manner as stepwise multiple regression. A significance level is fixed by the researcher (in this case again 0·1), the most "powerful" classifying variable is included first, and additional variables are included in order of their ability to add to the discriminating power of those variables already included. A further description of discriminant function analysis is given in Chapter 9 (p 160).

TABLE 27[1]

PREDICTING COLLEGE SUCCESS OF ENGINEERING APPRENTICES

		Predicted Outcome			
		Passed	Failed	Did Not Reach	Contributing Variables
Actual Outcome	Passed	118	1	6	Mechanical Comprehension Test‡‡‡
	Failed	17	—	4	"Autonomy" Motivation‡‡
	Did Not Reach	22	—	10	Neuroticism Scale‡‡

F significant at <0·01

Chi-square significance (with "failed" and "did not reach" groups combined)[2] <0·01

‡‡‡ Significant at better than the 0·01 level
‡‡ Significant at better than the 0·05 level
‡ Significant at better than the 0·1 level.

Notes:

1. In all tables of discriminant function analysis, two measures of the significance of the outcome are provided. The "F" significance takes account of the separation between the groups of cases for which individual discriminant functions are calculated. The Chi-square significance relates to whether the classifications showing the relationship between the actual and predicted outcomes are likely to result from chance or whether they reflect a true relationship between the two outcomes. (The *degree* of relationship—*ie*, the strength of the prediction—would, of course, be best represented by a correlation coefficient, but the only type of coefficient that could be calculated from the available data would in fact be difficult to interpret.) The stronger the significance (*ie*, the *lower* the value of the measure of significance) the stronger is the possibility that there is some association between the predictors and the actual outcome. (The value of Chi-square itself was computed using the Yates' correction for continuity.)
2. When the table has more than four cells, the Chi-square test is not applicable if the "expected" frequencies in more than 20 per cent of the cells is less than five. Accordingly in these circumstances it is necessary to combine appropriate adjacent categories, though this can be done only if they share a common property. In this case, an appropriate combination can be achieved to contrast "Passed"/"Did not pass," *viz*:

		Predicted	
		Passed	Did Not Pass
Actual	Passed	118	7
	Did Not Pass	39	14

by the possibility of creating career opportunities through college "success".

In the motor trade group complete information was available on 185 cases and they, likewise, were further analysed in their various subdivisions.

TABLE 28

PREDICTING COLLEGE SUCCESS FOR "NON-TRAINING-CENTRE" ENGINEERING APPRENTICES

		Predicted Outcome			
		Passed	Failed	Did Not Reach	Contributing Variables
Actual Outcome	Passed	21	—	4	Mechanical Comprehension Test‡‡‡
	Failed	—	2	—	"Instrumental" Attitude‡‡‡
	Did Not Reach	4	0	11	Extraversion Scale‡‡‡ "Hard Work" Attitude‡‡ "Opportunity" Motivation‡‡

* F significant at <0·01

Chi-square significance (with "failed" and "did not reach" groups combined) <0·01.

However, for them also there was a weak association between the predictors and college performance (Table 29), with 179 of the 185 cases being predicted as passes. The 118 cases successfully predicted is exactly the same as the number who would have been successfully predicted had all the apprentices been arbitrarily assigned

TABLE 29

PREDICTING COLLEGE SUCCESS OF MOTOR TRADE APPRENTICES

		Predicted Outcome			
		Passed	Failed	Did Not Reach	Contributing Variables
Actual Outcome	Passed	115	—	3	Neuroticism Scale‡‡
	Failed	10	—	—	"Hard Work" Attitude‡
	Did Not Reach	54	—	3	

* F significant at <0·10

Chi-square (with "failed" and "did not reach" groups combined)—Non significant.

‡‡‡ Significant at better than the 0·01 level
‡‡ Significant at better than the 0·05 level
‡ Significant at better than the 0·1 level.

* See notes 1 and 2 of Table 27 (page 148).

to the "passed" group, and once again the lack of success in prediction is largely due to the failure of the techniques used to distinguish between those who failed and those who did not reach the final examination.

Equally, as with the engineering group, there was only one category of motor trade apprentice where statistically significant associations were observed. In this case the OTC group (Table 30) was the one where some success was achieved in classifying apprentices.

TABLE 30

PREDICTING COLLEGE SUCCESS FOR "OTHER TRAINING CENTRE" MOTOR TRADE APPRENTICES

		Predicted Outcome			
		Passed	Failed	Did Not Reach	Contributing Variables
Actual Outcome	Passed	21	—	1	"Hard Work" Attitude‡‡
	Failed	1	22	—	"Self-Sufficient" Attitude‡‡
	Did Not Reach	3	—	10	

* F significant at <0·05

Chi-square significance (with "failed" and "did not reach" groups combined) <0·01.

‡‡‡ Significant at better than the 0·01 level
‡‡ Significant at better than the 0·05 level
‡ Significant at better than the 0·1 level.

* See notes 1 and 2 of Table 27 (page 148).

The 33 successful predictions amounted to 87 per cent of all cases, whereas arbitrary allocation of all apprentices to the "passed" group would have produced 22, or 58 per cent success.

In general there were few systematic associations between predictor variables derived from information gathered at entry to apprenticeship and college performance four years later. In almost all cases tossing a coin or picking winners with a pin would have been just as likely to identify those apprentices who would succeed at college.

The two cases where some success was obtained through the use of the discriminant function analysis do, however, deserve some explanation.

The "non-training-centre" engineers were a group where systematic support from their employer was not automatic and where less able

apprentices, in particular, received little encouragement to continue at college, once having met with a setback. Equally, apprentices of this type whose prevailing attitude disposition was to wish themselves out of college found little difficulty in getting their employer to support their wish. On the other hand, the boys who were anxious to seize their opportunities tended to persevere and succeed. In this group then, the personal characteristics of individual apprentices tended to determine how much progress they would make at college, whereas the other types of apprentice tended to be more controlled by their employers and the regulations of the appropriate industrial training boards whose grant payments were often conditional upon college attendance. In the latter case,

TABLE 31

COLLEGE PERFORMANCE BY GROUP

Group	Type	Passed	Failed	Did Not Reach	n
Engineering	SSEB	82%	6%	12%	74
	OTC	59%	24%	17%	71
	NTC	50%	4%	46%	50
	All	66%	12%	22%	195
Motor Trade	LAGTA	68%	7%	25%	104
	OTC	56%	7%	37%	47
	NTC	55%	3%	42%	60
	All	62%	6%	32%	211

therefore, individual characteristics, as the statistical analyses indicated, were less associated with college success.

The "other training centre" motor trade apprentices could be classified, as has already been indicated, in a very straightforward way according to their attitudes. Within that group success was more likely to come to those apprentices who were characterised on our scales as possessing favourable attitudes towards hard work and self-sufficiency. Irrespective of any other ability or personality characteristics, these apprentices out-performed other apprentices with a similar training background.

Apart from these associations within types and groups of apprentices, the two populations of apprentices could also be compared across types (Table 31).

Within the engineering group, the various categories of apprentice showed considerable differences in performance. As the entry

characteristics showed, the SSEB apprentices were initially the most able. This ability, together with longer training, and an insistence on college attendance, meant that almost all of those who commenced an apprenticeship with SSEB completed the appropriate college course successfully. The other two groups of engineering apprentices did not differ in terms of proportion passing so much as in proportion completing the course. Among the OTC boys, attending college

TABLE 32

PREDICTORS OF WORKSHOP COMPETENCE IN ENGINEERING
(with multiple regression coefficients)

Group	n	Predictors and Correlation Coefficients		Percentage of Variance Explained	F	p
All	(73)	Mechanical Comprehension Test	0·271‡‡			
		Neuroticism Scale	0·334‡	11·2%	5·31	<0·05
SSEB	(31)	Extraversion Scale	0·388‡‡‡			
		"Autonomy" Motivation	0·561‡‡			
		"Conditions" Motivation	0·634‡	40·2%	6·42	<0·01
OTC	(27)	"Opportunity" Motivation	0·484‡‡‡			
		Mechanical Comprehension Test	0·622‡			
		"Pride" Attitude	0·678‡	46·0%	6·25	<0·01
NTC*	(15)	Mechanical Comprehension Test	0·691‡‡	47·6%	9·09	<0·05
Electricians	(28)	Neuroticism Scale	0·397‡‡‡			
		Extraversion Scale	0·599‡‡			
		Age	0·669‡	44·8%	6·50	<0·01

‡‡‡ Significant at better than the 0·01 level
‡‡ Significant at better than the 0·05 level
‡ Significant at better than the 0·1 level.

* In this case only one variable qualified for inclusion in the final regression equation and therefore the coefficients were not multiple.

was generally a condition of employment so that although of lesser ability than the SSEB boys, the OTC apprentices were just as likely to complete the course, though not to pass it. The NTC apprentices, as has been already explained in connection with the prediction of "success" within this apprentice type, were less likely to be pressed to attend college and so, when the going got tough, were more prone to drop out.

These differences were not apparent within the motor trade group. Although there were differences among various categories of apprentice, these were not statistically significant. What was noticeable, however, was a general difference between engineering and motor trade apprentices. The proportion of each group "succeeding" at college was very similar but the proportion willing to or encouraged to continue at college was smaller within the motor trade.[10]

Workshop Competence

In the workshop situation, many different supervisors were looking at different groups of apprentices. Within each category of analysis however (including the category of those employed specifically as electricians and motor mechanics) there was a degree of agreement across, and independent of, places of work (Tables 32 and 33).

In general the analyses of workshop competence indicated again that ability or aptitude remain more important throughout an engineering apprenticeship than they do in a motor trade apprenticeship. Of course, in many engineering trades, the competence of one's work is more easily assessed and so the higher values of the regression coefficients indicate the feasibility of conducting such assessments just as much as they indicate apprentice competence.

Within the engineering group, the SSEB apprentices, who were assessed as more competent, tended to have motivations and personality characteristics, rather than ability characteristics, which contributed to this success. A review of entry characteristics indicated, however, that these apprentices were more similar to each other in cognitive test scores than was the case in the other training types. This narrow spread of scores would make an association between cognitive and criterion measures less probable. Also it has been noted already that the SSEB training produced a greater homogeneity of performance amongst its apprentices both

[19] This difference, on the comparison "continued at college/did not continue" was statistically significant at only the 10 per cent level.

at the first and final stages of performance. This effect would also make cognitive explanations of success less likely.

Also, within the engineering group, the electricians who were assessed as more competent tended to have personality, rather than ability, characteristics in common. While, in part, the motor trade and electrical contracting could both be classified as service industries, customers tend to evaluate the work of these two types of tradesmen differently. The difference in this evaluation is largely due to the

TABLE 33

PREDICTORS OF WORKSHOP COMPETENCE IN ENGINEERING
(with simple regression coefficients)*

Group	n	Predictors and Correlation Coefficients		Percentage of Variance Explained	F	p
All	(56)	"Conditions" Motivation	0·254‡	6·4%	3·23	0·10
LAGTA	(30)	"Conditions" Motivation	0·323‡	10·4%	2·90	0·10
OTC†	—	—	—	—	—	—
NTC	(15)	Extraversion Scale	0·565‡	31·9%	4·43	0·10
Motor Mechanics	(39)	Age	0·293‡	8·6%	3·51	0·10

‡‡‡ Significant at better than the 0·01 level
‡‡ Significant at better than the 0·05 level
‡ Significant at better than the 0·1 level.

* In these cases only one variable qualified for inclusion in the final regression equation and therefore the coefficients were not multiple.
† At this point too few ratings were available for the computation to be relevant.

fact that while an electrician may come regularly to the home, a motor mechanic does not. (When having an outlet socket fitted to the wall, people generally judge an electrician by his neatness and pleasant approach to them rather than by the technical expertise of the job.) Those electricians assessed as competent would tend therefore to share certain non-cognitive characteristics, as the results here tended to indicate.

Apprentices in the motor trade tend to be similar to electricians in so far as the technical competence of their work is more difficult to assess than its neatness and "finish". They therefore tend to be assessed on other non-cognitive characteristics. Because of the

small size of most workshops, however, assessment proved to be difficult for most supervisors. The associations between predictors and this criterion of competence were correspondingly slight, throwing little light on whether there is any consistent predictor.

What should however be noted is that, irrespective of their constituent parts, the size of the regression coefficients indicating associations between predictors and criterion is in the same range as those observed by NIIP (Frisby *et al* 1959) or even a little higher. Even allowing for restrictions of range, the NIIP study produced correlation coefficients of, at best, $r=0{\cdot}50$. Considering the difficulties in constructing the criterion and evaluating it across a large number of supervisors, this is a most satisfactory outcome, although it must be said that even correlations in the range of 0·25 to 0·69 leave a great deal of the variation in performance unexplained.

It seems likely, therefore, that the prediction of competence at work is more easily achieved than the prediction of success at college. The two criterion measures are not, however, directly comparable since workshop assessments were available on only a proportion of the apprentices who had continued with their original employer. This reduced number also meant that the correlation coefficients were less dependable, due to the small number of observations.

In spite of the populations for the college and workshop criterion measures being different in size, they shared a sufficient number of apprentices in common for a comparison of the two measures to be possible. This comparison indicated that, on an analysis of all apprentices in each of the engineering and motor trade groups, and on an analysis of those apprentices in both industries who had been given off-the-job training in a training centre, there were no significant associations between how well an apprentice did at college and how he was assessed by his workshop supervisor. Much of this lack of association was due to the fact that the overwhelming number of apprentices for whom workshop assessments were available had completed their college course with a pass. When any dichotomous variable (such as "pass/fail") is divided in an extreme fashion (*eg*, 90/10) it is difficult for statistical analysis to show associations between scores on that variable and scores on a criterion such as workshop assessments.

In the NTC groups however, the relationship between the two criterion measures was strong in both the engineering and motor trade situations. Here, of course, employers were more conscious of the present value of an extra pair of hands than the future value

of a certificated tradesman and so there were more apprentices in this category who had discontinued their college studies while retaining their employment. In this case, therefore, workshop assessments were available for apprentices whose performance on the college criterion covered the whole range of values. With these groups the large number of supervisors who completed the assessments agreed that those who had successfully completed their college course exhibited more competence in the workshop than their counterparts who had not completed the college course. This is not necessarily to say that completing college studies improves workshop performance since it may well be the case that a small number of boys with more workshop competence are more strongly encouraged to continue at college. It has often been noted in conversations with supervisors that too much success at college can lead to an apprentice aspiring beyond his existing firm. Particularly in the smaller firms which are normally to be found in the NTC category there is a continuing need for less skilled employees who will stay with the firm.

While consideration is being given to these final evaluations of performance at work and college, some attention should be paid to the associations between first-year performance and final-year performance. In fact there were no observable associations between performance at these two stages. The nature of the criterion measures is partly the cause of this, but nevertheless it might have been expected that those who succeeded over the whole of college attendance would be, by and large, those who had done well in the first year. This was not so to any great extent and the explanation would seem to be that after the end of the first year of training and the end, for most apprentices, of any lengthy, integrated education and training the non-cognitive characteristics begin to predominate.

The nature of the variables associated with first-year success (Tables 21 to 26) and the variables associated with final-year success (Tables 32 and 33) lends support to this view. The increasing importance of non-cognitive characteristics is reflected in the lists of correlations and tables of discriminating variables. To succeed in college studies and in the eyes of a supervisor demands different characteristics from those rewarded in a structured training environment. In training, there are certain logical rules and regulations which aid the acquisition of skills but at work there is a certain arbitrariness in rules and decisions to suit the conditions of work. To survive in employment requires certain non-cognitive characteristics which enable one to adjust to this arbitrariness. Certainly

off-the-job training is essential for laying down the foundations of future knowledge and skill, but the ability to "succeed" and make continuing use of these attributes is dependent on a form of perseverence which is the focus of our consideration in the next chapter.

Summary and Conclusions

Through the use of what were considered to be appropriate statistical techniques, first-year and final-year "success" was measured.

It was observed that first-year success, particularly in terms of college performance, could be predicted to a fairly high degree, although the less accurate predictions were more often associated with a highly systematic training provision. The explanation was offered that the systematic training produced a levelling-out of performance which depressed the value of the predictive measures.

Fewer measures of training success could be obtained from employers although those which were available also indicated the greater effectiveness of more systematic training.

The measures obtained at the end of the course indicated that it was difficult to derive a satisfactory measure of college performance, and that there were few associations between the predictors and the measure used to indicate college performance. Workshop competence was assessed with some success in the engineering group, but less successfully in the motor trade group. The explanation offered here, as with a similar finding in the first-year situation, was that the nature of motor trade competence is such that measurement of performance is more complex than in most engineering work, other than electrician's (which has a similarity with motor trade work).[11]

Although the composite measures derived from Workshop Characteristics were entered into the statistical analyses where appropriate, there were scarcely any cases where these composites contributed to the prediction of "success" in performance terms.

What did, however, emerge from these analyses was differences between industries and differences within industries. In the first place engineering apprentices can be more easily assessed on the quality of their work than can motor trade apprentices; and in the second, there are stronger pressures brought to bear on engineering apprentices to continue at college than are brought to bear on motor trade apprentices.

[11] This similarity is reflected in the statistical analyses.

On the other hand the effectiveness of systematic training has already been remarked on, and the counterpart of that observation is that the boys who succeeded without the support of systematic training (the NTC groups) were more likely to do so by virtue of non-cognitive characteristics than of cognitive ones.

A careful examination of the patchwork of associations between predictor measures and the variety of criterion measures indicates that there were few variables consistently and significantly associated with success throughout apprenticeship. Indeed, one consistent finding in this, and other researches is that ". . . an apprentice who did well . . . at the end of the first year will not necessarily do well at the end of his third year." Ability "is not the most crucial factor by the end of his third year" (Hogan, 1973).

Even allowing for the difficulties in deriving criterion measures, in coping with the variety of further education routes, and the diversity of workshop environments, the apprenticeship process would seem, over four years in the lives of young adults, to produce such variation in performance as to throw doubts on the purpose of attempting to predict "success".

9

STAYING THE COURSE

This chapter, in which a combination of objective and impressionistic data is attempted, is concerned with factors associated with changes of employment during the four years after commencement of an apprenticeship. Some of the information used to illuminate these changes was obtained by means of mailed questionnaires to those who had changed, some by enquiry from their employers, and some by direct contact with those apprentices who had previously been contacted as members of the interview sample.

All the boys for whom some variation in employment circumstances was noted are referred to as changers. Of these, some abandoned apprenticeship altogether and took up some other form of employment. These we have called drop-outs. Others continued their apprenticeship in the same trade but with another employer. These we have called job-changers. Yet others had a change of employment, the nature of which it was not possible to establish. These we have called unknown changers. These three groups have been compared with one other.

Just as there are changes in terms of new employment so too there are different causes of these changes. Some of our boys felt that they had changed their job of their own accord. Others felt that they had left under pressure. Yet others had not so much left as been left when their firm collapsed and they were made redundant. These three groups also have been compared with one other.

A further comparison has been made in terms of the year of apprenticeship (1st, 2nd, 3rd, 4th) during which the change from original employment occurred.

The final comparison that has been made relates to "success" in apprenticeship. In this connection, when the topic was raised initially (p 131) it was emphasised that for many employers, any

apprentice who stayed with them until at least the end of his time was accounted a success. It is for this reason that the final comparison that has been made is that between those who, at the end of four years, were in their original employment and those who, for whatever reason, were not.

Techniques of Analysis

The performance criterion variables associated with changes of employment were all of an ordinal type. In accordance with our established practice, discriminant function analysis was the principal technique employed. The analyses sought to discover whether those cases falling into each group—*eg*, the drop-out group—had shown any previously measured characteristics that distinguished them from those in other groups—*eg*, the group consisting of those successfully completing apprenticeship. The purpose of the analysis was two-fold: to identify characteristics of particular groups, and to discover whether, if the measurements were to be repeated on other young people, it would be possible to make good predictions—for example, as to whether they would complete an apprenticeship successfully. This analysis involved the construction for each pair of groups[1] of a discriminant function—a linear equation—combining the predictors optimally weighted to yield a single score (on a continuum) that assists in allocating cases to particular groups. (Two criteria serve to demonstrate whether the discriminant function is a useful one. These are:

1. Whether the equation(s) give(s) rise to many misclassifications of cases even when applied to the set of cases from which it/they had been derived, and
2. Whether the statistical probabilities are such that the relationship between the predictors and group membership is likely to be sufficiently stable for there to be a reasonable prospect of making satisfactory predictions covering a fresh set of cases.)

Time of Change

The year of apprenticeship during which the first change of employment occurred is summarised in Table 34.

[1] These paired groups may be either the basic groups or combined groups. (The function may, for example, distinguish between group A and groups B and D combined.) The maximum number of discriminant functions is one less than the number of groups in the analysis.

In view of the small number of engineering changers in the third and fourth years, these categories have been collapsed and will be treated as one in the subsequent analyses.

What is immediately obvious from this table is that there were many more changes in the motor group than in the engineering group and that changes varied according to training type. Some indication of why these situations should be will emerge shortly. It is also clear that "changing" in the motor trade builds up to a

TABLE 34

CHANGING JOBS BY YEAR OF APPRENTICESHIP[2]

Group	Year	Training Type				% of all apprentices
		SSEB	OTC	NTC	All	
Engineering (n=195)	1	6	4	7	17	9
	2	4	3	3	10	5
	3 } 4 }	—	5	5	{ 6 4 } 10	5
		LAGTA	OTC	NTC	All	
Motor Trade (n=211)	1	4	8	10	22	10
	2	9	7	5	21	10
	3	13	6	12	31	15
	4	10	1	3	14	7

peak in the third year whereas in the engineering industry the first year is the peak year and wastage slows down thereafter.

How far the year in which changes occur is symptomatic of other differences among apprentices is the subject of this particular set of analyses.

In the engineering group a discriminant function analysis relating to year of change was successfully performed such as to distinguish every category of student. The classification table (Table 35) for all engineering apprentices on whom full data was available is

[2] The figures for drop-outs are low compared with rates quoted elsewhere. The Road Transport Industry Training Board reports annual rates of 17 per cent amongst garage apprentices (RTITB 1973). These figures may represent quit-rates rather than drop-out rates, since employers making returns may not be able to distinguish job-changers from drop-outs. Even so, our figures are lower than these. The engineering group figures are also low. Drop-out rates quoted elsewhere for apprentices generally over the whole period of apprenticeship include 53 per cent in Birmingham and 15 per cent in Glasgow (Mackay 1971) and "one-fifth" in England and Wales (Schools Council 1968).

indicative of the ways in which changers are different according to year of change.

For 24 apprentices (77%) correct classifications were achieved (Table 35).

TABLE 35[1]

PREDICTING YEAR OF CHANGE AMONG ENGINEERING APPRENTICES

		Predicted Year of Change			Contributing Variables
		1	2	3	
Actual Year of Change	1	7	2	2	Mechanical Comprehension Test‡‡
	2	1	9	—	"Instrumental" Attitude‡[2]
	3	1	1	8	"Pride" Attitude‡

* F significant at <0·01 — Fisher's Exact Probability Test[3] (with years 2 and 3 combined) <0·01.

‡‡‡ Significant at better than the 0·01 level
‡‡ Significant at better than the 0·05 level
‡ Significant at better than the 0·1 level.

* See notes 1 and 2 of Table 27 (page 148).

Notes:
1. The tables in this chapter follow the pattern previously described on p 152.
2. The derivation of composite Attitude and Motivation variables is explained in Appendix B.
3. Chi-square cannot safely be used, but a satisfactory substitute can be found in Fisher's Exact Probability Test (Cochran 1954, Siegel 1956). Accordingly in this table— and where necessary in subsequent tables—the Fisher test has been employed (as a "two-tailed" test). Like Chi-square, it yields significance levels in terms of the probability of the given distribution occurring solely by chance.

In the motor trade group, the overall success rate was also encouragingly high. For all apprentices who changed, the year of change was correctly classified in 71 per cent of cases, if account was taken of the Workshop Composites. Since the workshop information was not available for all apprentices, however, the number of cases on which this classification was made is lower than for other classifications. The predictor variables which contributed to this classification were—again in order of importance—"Recruitment" Workshop Composite,[3] "Size" Workshop Composite,

[3] This particular composite requires some further explanation. The more systematically a firm identified vacancies and filled them the higher its rating on this variable.

"Opportunity" Motivation, "Conditions" Motivation, "Skill" Workshop Composite.

Breaking the total group down into its constituent parts provided no better insights into the characteristics of the apprentices who changed employment at different stages in their apprenticeship. There are, as we will see subsequently, many different reasons for an apprentice changing his employment which seem to be additional to those associated with year of apprenticeship. Certainly our parallel analyses taking workshop characteristics into account

TABLE 36

PREDICTING YEAR OF CHANGE AMONG MOTOR TRADE APPRENTICES

		Predicted Year of Change				Contributing Variables
		1	2	3	4	
Actual Year of Change	1	5	1	1	1	"Recruitment" Workshop Composite‡‡[3]
	2	1	9	1	2	"Size" Workshop Composite‡
	3	—	4	11	1	"Opportunity" Motivation‡
	4	—	—	2	7	

* F significant at <0·01 Chi-square (with years 1 and 2 combined and years 3 and 4 combined) <0·01.

‡‡‡ Significant at better than the 0·01 level
‡‡ Significant at better than the 0·05 level
‡ Significant at better than the 0·1 level.

* See notes 1 and 2 of Table 27 (page 148).

indicated in this case that whatever other effects particular types of workshop may have on changes of employment, they have a strong effect on the year of apprenticeship during which the change occurs.

One other positive finding comes from interviews with employers and apprentices. By the third year, most motor apprentices are working on their own and repaying some of the training costs in which employers have invested. In fact boys who have reached this stage are sufficiently valuable from the employers' point of view for advertisements for third-year apprentices to appear in local newspapers. Such apprentices are a desirable commodity on the labour market. It is small wonder then that the third year is the peak year for changes in employment.

Type of Change

As previously indicated (p 159), in this series of analyses three major types of change (Table 37) were examined. The changes varied in quantity between industries, but not in nature, except in

TABLE 37

CHANGERS BY GROUP OR TYPE

Group	Type of change	SSEB	OTC	NTC	All	% of all apprentices
Engineering (n=195)	Drop-outs	6	4	8	18	9
	Job-changers	4	8	7	19	10
	Unknown changers	—	—	—	—	—
		LAGTA	OTC	NTC	All	
Motor Trade (n=211)	Drop-outs	15	8	19	42	20
	Job-changers	16	9	8	33	16
	Unknown changers	5	5	3	13	6

the case of boys whose change we were unable to identify (all of whom fell in the motor trade group). Between the training types in both industries, however, there were no statistically significant differences.

Further information was sought by a mailed questionnaire which

TABLE 38

NEW JOB OF DROP-OUTS

Group	Lower Job	Other Trade	Higher Job	Forces etc.	n
Engineering	10	2	2	1	15
Motor Trade	20	5	7	8	40

attempted to establish the directions in which the drop-outs had moved (Table 38). As Table 38 shows, most of the drop-outs were in the motor group, but in both groups half or more went to jobs which we have classified as "lower" in terms of skill or status—a variety of semi-skilled or unskilled occupations. A few managed

to transfer to apprenticeships in other trades, but since there are normally upper age limits placed on entry to apprenticeship this type of change was generally (in six cases out of seven) accomplished in the first year of apprenticeship. The jobs which we classified as "higher" were mainly in the clerical category. Most of those who moved to such jobs and most of those who enlisted in the armed forces were drop-outs from the motor trade.

Even if allowance is made for the fact that there were some changers whose destinations could not be ascertained (the "unknown" group), it seems apparent that it was difficult for most of those who dropped out of their apprenticeship to secure anything but lower level jobs.

The finer details of, for example, type of drop-out could not be pursued any further because of low numbers in each category. The more crude division (in engineering) into drop-outs and job-changers and (in the motor trade) into drop-outs, job-changers and unknown changers did, however, provide satisfactory numbers for at least preliminary discriminant function analyses (Tables 39 to 40) to be accomplished using those cases for whom complete data were available.

The number of cases for each category of engineering apprentice was very small but, except in the case of "all engineers," a very complete and almost totally accurate separation of drop-outs and job-changers was accomplished. This separation, however, as can be seen from the significance levels, was achieved more through the smaliness of the groups than through the power of the variables.

Only in the case of SSEB apprentices were the ability measures particularly prominent, with the job-changers being characterised by their higher ability. It is suggested that such apprentices perceive the possibilities open to them to continue in employment in the same trade, albeit with a different employer, and use these possibilities to broaden their experience.

In the case of the other types of apprentice (OTC, NTC, electricians) there were two common factors, age and having an enquiring or ambitious nature.

Age, as a factor which enables some younger boys to make a fresh start in a new trade, is explicitly important among the OTC boys and the electricians where the younger boys could change jobs but where the older boys, who could not, tended to fall into the drop-out category. But the same is true of the NTC apprentices where age does not appear as a contributing variable because the

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TABLE 39

CHANGERS IN ENGINEERING

All Engineering Apprentices

		Predicted Outcome		
		Drop-Outs	Job-Changers	Contributing Variables
Actual Outcome	Drop-Outs	8	7	"Education" Attitude‡‡
	Job-Changers	5	11	Age‡

* F significant at <0·05 Chi-square—Non-significant.

SSEB

		Predicted Outcome		
		Drop-Outs	Job-Changers	Contributing Variables
Actual Outcome	Drop-Outs	6	—	Spatial Formboard Test‡‡‡
	Job-Changers	—	4	Mechanical Comprehension Test‡‡ "Conditions" Motivation‡‡ "Hard Work" Attitude‡

† F significant at <0·05 Fisher's Exact Probability Test <0·01

OTC

		Predicted Outcome		
		Drop-Outs	Job-Changers	Contributing Variables
Actual Outcome	Drop-Outs	4	—	"Opportunity" Motivation‡‡‡
	Job-Changers	—	5	Age‡‡‡ "Supervision" Motivation‡‡ Extraversion Scale‡

† F significant at <0·10 Fisher's Exact Probability Test <0·01.

NTC

		Predicted Outcome		
		Drop-Outs	Job-Changers	Contributing Variables
Actual Outcome	Drop-Outs	5	—	"Education" Attitude‡‡‡ Extraversion‡‡‡
	Job-Changers	—	7	"Promotion" Motivation‡

† F significant at <0·01 Fisher's Exact Probability Test <0·05.

Electricians (See Note 1)

		Predicted Outcome		
		Drop-Outs	Job-Changers	Contributing Variables
Actual Outcome	Drop-Outs	7	1	Age "Promotion" Motivation
	Job-Changers	3 (1)	6 (8)	("Outward-Looking"[2] Workshop) (See Note 2)

† F significant at <0·10 Fisher's Exact Probability Test <0·10 (<0·02)

‡‡‡ Significant at better than the 0·01 level
‡‡ Significant at better than the 0·05 level
‡ Significant at better than the 0·1 level.

* See notes 1 and 2 of Table 27 (page 148).
† See note 3 to Table 35 (page 162).

Notes:
1. In the case of this category within the engineering group, the addition of workshop information helped to improve the number of changes correctly classified, in the manner indicated by the bracketted information.
2. This particular composite was derived from the attitudes of employers towards training, all-round competence in a tradesman, etc. The more the employer thought in terms of benefit to the trade and the less he thought only in terms of narrow self-interest, the higher his rating.

boys in this category were older at the beginning of apprenticeship and few, if any, were, for that reason, able to change trade.

What we have described as an "enquiring nature" varies in detail from category to category, appearing in one as "promotion" motivation, in another as "extraversion" and in another as "opportunity" motivation. These crude composites seem to describe boys who, on deciding to change jobs, see a future in their trade

TABLE 40

CHANGERS IN THE MOTOR TRADE

All Motor Apprentices

		Predicted Outcome			
		Drop-Outs	Job-Changers	Unknown Changers	Contributing Variables
Actual Outcome	Drop-Outs	23	1	12	"Education" Attitude‡‡
	Job-Changers	15	17	—	"Skill" Motivation‡
	Unknown Changers	2	2	4	"Opportunity" Motivation‡

F significant at <0·01.

LAGTA

		Predicted Outcome			
		Drop-Outs	Job-Changers	Unknown Changers	Contributing Variables
Actual Outcome	Drop-Outs	9	—	4	"Workplace" Motivation‡
	Job-Changers	3	13	—	Arithmetic Test‡ Age‡
	Unknown Changers	1	1	3	"Conditions" Motivation‡

F significant at <0·05.

OTC

		Predicted Outcome			
		Drop-Outs	Job-Changers	Unknown Changers	Contributing Variables
Actual Outcome	Drop-Outs	6	—	—	"Opportunity" Motivation‡‡‡
	Job-Changers	—	9	—	"Hard Work" Attitude‡‡‡
	Unknown Changers	—	—	2	"Skill" Motivation‡‡‡ Age

F significant at <0·01.

NTC

		Predicted Outcome			
		Drop-Outs	Job-Changers	Unknown Changers	Contributing Variables
Actual Outcome	Drop-Outs	15	—	2	"Education" Attitude‡‡‡
	Job-Changers	6	1	—	Father's Occupation‡‡
	Unknown Changers	1	—	1	

F significant at <0·01.

Motor Mechanics

		Predicted Outcome			
		Drop-Outs	Job-Changers	Unknown Changers	Contributing Variables
Actual Outcome	Drop-Outs	14	—	3	Father's Occupation‡‡‡
	Job-Changers	3	9	—	"Hard Work" Attitude‡‡
	Unknown Changers	—	1	1	No. of O-grades Attempted‡

F significant at <0·01.

‡‡‡ Significant at better than the 0·01 level
‡‡ Significant at better than the 0·05 level
‡ Significant at better than the 0·1 level.

Note: Since more then 20 per cent of the "expected" frequencies in these tables are less than five, some adjacent categories would normally be combined (to permit Chi-square to be calculated). In this case, however, this cannot be done, since to combine categories having neither interval nor ordinal connection would make no sense. Fisher's Exact Probability Test has not been substituted for Chi-square because it is applicable for 2×2 tables only.

but not with their current employer. These boys seek advancement through a change of firm but not of trade. Such "enquiring" characteristics can also typify workshops, as the electrician's category makes clear. Boys in this category who worked for inward-looking firms and who wished to progress in their trade changed their firms. Indeed in some firms employing electricians it is commonly acknowledged that change of firm within the trade is

the only way of an apprentice acquiring a sufficiently broad experience of the demands of the job.

For all motor apprentices the diversity of change or the inappropriateness of the chosen variables made the separation into types of "changer" little better than chance. For the NTC apprentices the circumstances did not permit a satisfactory classification. Where, however, there was common training or employment (Table 40) the types of changer could be predicted with some accuracy.

As was found amongst engineering apprentices, age and an "enquiring" nature provided part of the explanation. Amongst motor mechanics and LAGTA apprentices there was an additional factor associated with school performance and/or aptitude which worked to the effect that more able apprentices were the ones more likely to change within the trade. Amongst motor mechanics only there was an association between father's occupation and nature of change. Those with fathers in white-collar occupations were more likely to leave the trade altogether, although the explanation for this is not apparent.

Before the causes of change are discussed, one other matter should be mentioned. Little evidence was available of any connection between changing jobs and any of the attitudes which emerged from the interviews. In the engineering study the number of eventual changers who had fallen into the interview sample (a total of 13) was too small to allow any patterns to appear. Amongst the motor apprentices there was evidence that a few of those who eventually dropped out were less clearly committed to the trade at the start than their colleagues, whereas those who later changed jobs within their trade were more than usually committed to it.[4] Such a lack of early commitment was, however, shown by only a minority of the apprentices who dropped out, and it cannot be taken as a major reason why apprentices left the trade.

Causes of Change

Why then, did apprentices leave their employers? We attempted to discover the reasons as fully as possible, by means of contact, wherever possible, with those apprentices who had left. Their responses are summarised in Table 41, where the reason for change is cross-tabulated against the nature of the change. In the table the changers are divided into those who "left under pressure" and

[4] In reply to the first interview question about whether or not they thought they were in the right trade, eight out of 24 drop-outs or unknown changers felt they were not, compared with one out of 18 job-changers and six out of 36 among the others interviewed.

those who "left of their own accord." The first category was adopted because we found that in many cases it was not clear whether in fact an apprentice had or had not been formally dismissed. Not infrequently a boy told us he had been "given his books" while his employer said he had "left." Sometimes a "row" or a problem of personal relationships had arisen, and the apprentice left when he saw the writing on the wall. In other cases the apprentice had been simply dismissed for some kind of misconduct or because his work was considered unsatisfactory. All such cases we have included in the category "left under pressure." Some others, in the motor study only, were made redundant. The rest of the changers, as far as we could discover, had left of their own free will.

A number of interesting points emerge from this table. Firstly, the proportion of changers who left under pressure was much higher in the motor group than in the engineering group.[5] Most of those in this category left because of misconduct, or because of problems of behaviour or relationships. Comparatively few were dismissed because of unsatisfactory work. Apparently problems which resulted in apprentices leaving under pressure arose more frequently in the motor garages than in the engineering or electrical industry. Secondly, it appears that few of those who left under pressure continued in their trade and apprenticeship with another employer; *ie*, were job-changers. If situations arose which resulted in apprentices leaving under pressure, most of them dropped out of their trade altogether. A good proportion of those who left of their own accord, on the other hand, continued their apprenticeship with another employer and many of them had their new employment arranged before leaving their first job. Thirdly, most of the reasons for leaving given by apprentices who left of their own accord were positive ones. The large proportion of those whose stated reasons we were able to discover indicated that they were attracted to another type of work or another employer. Dissatisfaction with their first employment was less to the fore in their minds than the more positive factor that they had found something better.[6] It is also worth noting that only one apprentice indicated that he left his trade in order to earn more money. Finally there was a total of 18 redundancies in the motor group but none in the engineering group.

[5] In fact three of the engineering apprentices were dismissed as a result of misconduct at the SSEB hostel rather than at their work. If we take account of this it reduces the number who left because of pressure arising at their place of work even further.

[6] This is indeed what we have just observed about "job-changers" as a distinct group.

TABLE 41
REASONS FOR LEAVING FIRST EMPLOYMENT

Left Under Pressure

	Motor Apprentices				Engineering Apprentices			
	Drop-Outs	Unknown	Job-Changers	Total	Drop-Outs	Unknown	Job-Changers	Total
Misconduct, behaviour	7	2	3	12	2	4	—	6
Work unsatisfactory	4	2	1	7	—	1	—	1
Row with employer	3	—	2	5	1	—	—	1
Theft, conviction	2	2	—	4	1	—	—	1
Not clear, various	3	—	2	5	—	—	—	—
Total	19	6	8	33	4	5	—	9

Left of Own Accord

	Motor Apprentices				Engineering Apprentices			
	Drop-Outs	Unknown	Job-Changers	Total	Drop-Outs	Unknown	Job-Changers	Total
Didn't like the work	1	—	—	1	2	—	—	2
Poor conditions, experience	—	—	4	4	2	—	—	2
Saw something better	10	—	1	11	1	—	3	4
Personal reasons, parents moved	1	1	—	2	—	1	2	3
Money	—	—	—	—	1	—	—	1
Disliked other workers	1	—	—	1	—	—	—	—
Not clear, various	4	4	10	18	5	6	5	16
Total	17	5	15	37	11	7	10	28

Redundant

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	Motor Apprentices				Engineering Apprentices			
	Drop-Outs	Unknown	Job-Changers	Total	Drop-Outs	Unknown	Job-Changers	Total
	4	3	11	18	—	—	—	—

For the purposes of our analysis, we also wished to know whether, in particular training situations, the different causes of change could be identified. For each training type (Table 42) a different change pattern emerged.

Apart from the differences in patterns of redundancy—the motor trade with its predominance of small employers is more prone to problems of surplus labour—the motor trade is habituated to using various forms of pressure in order to trim its labour force to fit the ebb and flow of business. This pressure mentality was most characteristic of our large employers in the OTC training situation and least characteristic of the NTC employers where, it can be argued, apprentices recognised the risks of unemployment and always tried to keep one jump ahead of redundancy.

TABLE 42

REASONS FOR LEAVING FIRST EMPLOYMENT
(by Training Type)

Group Type		Left Under Pressure	Left of Own Accord	Redundant	n
Engineering	SSEB	3	7	—	10
	OTC	6	6	—	12
	NTC	—	15	—	15
Motor Trade	LAGTA	13	13	10	36
	OTC	13	5	4	22
	NTC	7	19	4	30

If, however, there is some association between type of apprentices and type of reasons for change which is independent of the factors associated with the industry and the firm, it should be possible, by discriminant function analysis, to identify them.

In the engineering group this analysis did not prove to be possible because of the cases for whom complete data was available, only five (of 31) were in the "left under pressure" category and the unevenness of this distribution made the techniques inappropriate.

In the motor group, however, the use of the "Recruitment" and "Size" Workshop Composites enabled 70 per cent of cases across the three categories to be successfully classified. Similarly, with the LAGTA and OTC apprentices, use of the same two Workshop Composites enabled all but one "changer" apprentice to be correctly classified. Only in the NTC case was the nature of the workshop not a contributory factor, and here the uniformly small size of the

workshops represented in this category ensured that these variables would not count. For NTC apprentices 92 per cent were correctly classified by a combination of—"Conditions" Motivation, Arithmetic Test, "Hard Work" Attitude, "Self Sufficiency" Attitude, "Responsibility" Motivation. This set of variables accords with previous suggestions that some positive reason often underlies self-initiated changes.

What little analysis was possible under this heading served to confirm the picture painted by Tables 39 and 40. The reasons given for change are powerfully associated with the nature of workshops in the motor trade.

Who are the Changers?

So far our analyses have depended on a prior identification of changers, but if the pattern of change which we have sketched in is to have any meaning at all, we must demonstrate that potential changers can be picked out from the total group of apprentices in any situation.

From the global "changer" figures of 88 motor trade apprentices out of a total of 211 (42%) and 37 engineering apprentices out of a total of 195 (20%) it is very evident that the nature of the industry has a particular effect on rate of apprentice turnover. It has already been mentioned how the size of workshops, the nature of the end-product, and the nature of supervision affect an apprentice's response to his employment. While the two groups of apprentices were seen as different, it was recognised that apprentices employed with electrical contractors had more in common with motor mechanics on these parameters than with engineers. The gross turnover figures confirmed this, since 13 of 37 contracting apprentices (35%) changed employment whereas only 24 of the other 158 engineering apprentices (15%) did so.

There was no evidence, however, that changing was associated with particular trades or types of employment in any other systematic way, and the discriminant function analysis of all apprentices in each industry was accordingly unsuccessful in classifying apprentices as "changers" and "non-changers" to any degree significantly better than chance.

Among the various categories in the engineering group (other than SSEB), however, some success in classification was possible, especially when workshop factors were taken into account (Table 43).

In addition to the workshop factors it is particularly important to recognise that NTC and electrician apprentices were, in general,

TABLE 43

PREDICTING CHANGE
(Engineering Apprentices)

OTC

		Predicted Outcome		Contributing Variables
		No Change	Change	
Actual Outcome	No Change	39	2	"Size" Workshop‡‡‡ Spatial Formboard Test‡ "Promotion" Motivation‡
	Change	1	4	

* F significant at <0·01 Fisher's Exact Probability Test <0·01.

NTC

		Predicted Outcome		Contributing Variables
		No Change	Change	
Actual Outcome	No Change	14	1	"Size" Workshop Age
	Change	1	7	Father's Occupation

* F significant at <0·01 Fisher's Exact Probability Test <0·01.

		Predicted Outcome		Contributing Variables
		No Change	Change	
Actual Outcome	No Change	33	1	"Size" Workshop‡‡‡ "Skill" Workshop‡‡‡ Father's Occupation‡‡ "Opportunity" Motivation‡
	Change	3	8	

* F significant at <0·01 Fisher's Exact Probability Test <0·01.

‡‡‡ Significant at better than the 0·01 level
‡‡ Significant at better than the 0·05 level
‡ Significant at better than the 0·1 level.

* See note 3 of Table 35 (page 162).

placed in a less-structured industrial setting. Family support, which the variable "Father's Occupation" is indicative of, was of greater importance to them than it was to boys in structured training schemes where the schemes themselves provided the support even when apprenticeship experience was lacking in other members of their family.

The best classifications of the various categories in the motor trade group were also obtained through the addition of the workshop composites (Table 44), except in the cases of (1) the NTC group, where an insufficient number of employers had responded to our inquiries and where, therefore, classification was attempted without these variables, and (2) the OTC group, where the employers were so similar that differences in respect of these variables were insufficient for these variables to make an independent contribution.

TABLE 44

PREDICTING CHANGE
(Motor Apprentices)

LAGTA

		Predicted Outcome		
		No Change	Change	Contributing Variables
Actual Outcome	No Change	39	5	"Size" Workshop‡‡‡ Father's Occupation‡‡
	Change	9	12	Arithmetic Test‡‡ "Education" Attitude‡ Age‡

* F significant at <0·01 Chi-square <0·01

OTC

		Predicted Outcome		
		No Change	Change	Contributing Variables
Actual Outcome	No Change	17	4	Father's Occupation‡‡ "Workplace" Motivation‡
	Change	6	11	Age‡ "Authority" Attitude‡ "Opportunity" Motivation‡

* F significant at <0·01 Chi-square <0·01.

NTC

		Predicted Outcome		
		No Change	Change	Contributing Variables
Actual Outcome	No Change	25	3	"Workplace" Motivation‡‡
	Change	11	15	Age‡‡

* F significant at <0·01 Chi-square <0·05.

Light Vehicle Mechanics

		Predicted Outcome		
		No Change	Change	Contributing Variables
Actual Outcome	No Change	18	2	"Workplace" Motivation‡‡‡
	Change	2	13	"Skill" Motivation‡‡‡ "Recruitment" Workshop‡‡ Father's Occupation‡‡ "Size" Workshop‡ Number of O-grades attempted‡

* F significant at <0·01 Chi-square <0·01.

‡‡‡ Significant at better than the 0·01 level
‡‡ Significant at better than the 0·05 level
‡ Significant at better than the 0·1 level.

* See notes 1 and 2 of Table 27 (page 148).

From the motor trade analyses two further deductions can be made. (1) As with the engineers, there are certain situations where family background is particularly important, and (2) in those cases where workshop variables were included in the analyses, the apprentices' own perceptions of their own and their desired workplace assumed a particular significance in helping to classify entrants as "changers" and "non-changers."

Although the classifications were not perfect, they were sufficiently accurate to justify the earlier sub-divisions of changer by year, by type and by cause of change.

Conclusions

The analyses made in this chapter of various surrogates of "success" in apprenticeship have made it very clear that the characteristics of a workplace and the personal characteristics of its apprentices have an importance, beyond the abilities of the apprentices, in determining who will stay the course.

There were, of course, situations where the analyses produced either no satisfactory classifications of apprentices or only very poor ones. There were also, across situations, a diversity of contributing variables indicative of the exploratory nature of the instruments used in collecting data.

But the general trends point clearly in specific directions and, taken together, the points which have been raised about the apprentices who changed their employment call for three general comments. The first is that the occurrence of changes in employment is closely connected with the type of industry. This is seen particularly in the overall numbers of changers: 88 out of 211 in the motor repair industry, compared with 37[7] out of 195 in engineering. More specifically, it appears that something in the atmosphere, relationships, or organisation found in garages makes it easy for apprentices to indulge in behaviour which is defined as misconduct or to have "rows" with their superiors, or for other problems to arise which lead to apprentices leaving under pressure. Finally it seems that the difficulties of running a business in the motor repair industry contribute to the higher incidence of redundancy amongst apprentices.

Secondly, the changes reflect different attitudes to the apprentices' contract of employment in the different industries. Although formal indentures were given in only one firm in our sample, the traditional and official understanding that the contract of apprenticeship is binding on both parties unless extreme situations arise is reflected in the figures for changers in the engineering group. Very few boys were dismissed by their employers; and very few apprentices changed to other jobs within their trade. But the situation is considerably different in the motor repair industry.

While the official apprentice contract is similar to that in other industries, in practice it is widely assumed that employers are at liberty to dismiss or pay off apprentices in the same way as other employees, and that apprentices can move from one employer to another as other workers do.

[7] Including 13 in electrical contracting alone.

A representative of the employers' organisation, the Scottish Motor Trade Association, admitted that "a fairly high percentage of apprentices do change employment", even though the association regretted and discouraged this practice. It is apparent that the full traditional understanding of the binding nature of the apprentice contract did not apply within many garages.

The same can be said to some extent of the electrical contracting industry. We have seen that six of the ten job-changers in the engineering group were in electrical contracting firms. In this case also a representative of the employers' organisation confirmed that "a large number are with more than one employer" and that it was typical for an apprentice to be with two or three employers during the course of his apprenticeship. Here again it seems that the contract between employer and apprentice is looked on more loosely than in the engineering industry generally.

Thirdly, it seems that if problems arose in relation to particular boys' employment relationships, or if the boys became dissatisfied with their trade, the way out usually involved accepting a job with a lower skill-level and status. We have seen that most of those who left their employers under pressure did in fact drop out of their trade. And most of those who dropped out entered lower status jobs. It is true that a handful of lads did manage to change to an apprenticeship in another trade during the early stages, but this was of course impossible later on. Again a few managed to move into jobs with higher potential: one, for example, to become a trainee work study engineer; one to work in an architects' firm; one to work in the sales office in a steel works; and one to go to college to study commercial art. But many landed in unskilled work such as labouring in a brickworks or on the railway; cleaning chickens in a frozen food plant; or doing semi-skilled work in factories.

In the eyes of many employers and in the lives of many young people, changes of employment by apprentices are more relevant indicators of success and failure than the more traditional measures of job-performance. In this chapter an attempt has been made to describe some of the factors associated with job-changing and to give an appropriate weighting to their importance.

10

POSTSCRIPT

Much more could be written than has already been written on the topic of selection for employment. Much more could have been done, in this investigation, in the way of statistical analyses than has been done. Deciding on either, or both, of these tasks assumes, however, that we were engaged on a definitive study or that employers and employees see the process of apprenticeship as fixed and unchanging.

By virtue of being engaged on an exploratory study we are content, in the second part, to have indicated what possibilities there are, through the use of cognitive and affective information, to predict the long-term "success" of boys entering apprenticeship. Future studies may decide to take up the work reported here and attempt to develop measuring instruments which will accurately predict job success. In doing so, however, they should not neglect "the changing nature of both the training and the applicants—in response to change and progress in the relevant occupational and educational areas" (Killcross and Bates, 1975).

Industrial Training

In the course of this part of the report it has been repeatedly emphasised that the nature of the workplace was particularly important in determining job success, and that there were strong indications that structured, systematic training could produce changes in apprentice performance, independent of initial ability.

Among our employers there were many who seemed unaware of the "climate" of their own organisation. The views expressed to us by apprentices demonstrated an industrial situation where supervisory practices, availability of tools, etc., provision of appropriate

amenities, were very variable and had an effect on apprentice performance in line with that variability.

Similarly there were employers who assumed that someone else would produce the tradesmen end-product for them. They could select whomsoever they wished, send them to the technical college or the training centre and at the end of the appropriate period receive in return trained personnel who would stay in their employment, come what may. These are the employers Ethel Venables seems to have had in mind when she wrote: ". . . Selection by means of objective tests implies selection for some particular process, so the tests must be appropriate to that process. However, when students fail it is rare for the *process* to be questioned. It is assumed either that the tests are wrong or the students perverse and that all we need is improved, *ie*, more detailed, testing, including perhaps personality tests."[1]

For employers in either of these categories it is possible to set up some kind of selection procedure, providing that enough applicants are available to meet the fairly severe entry standards. These severe entry standards are necessary because only a few unusual applicants will be able to sustain the poor working conditions and lack of support in training which such employers offer.

On the other hand our analyses showed that certain firms were aware of the psycho-social problems associated with "success", were aware that applicants judged as "good" by selection systems were not sufficient to fill all the vacancies each year, and were therefore dedicated to seeking to understand the process of apprenticeship to the best of their power.

Such firms paid particular attention to the training, ensuring that it matched both the changing nature of apprentices and the changing technology of their industries. They attempted to achieve an effective integration of their training programme with the technical college syllabuses, and they maintained a close contact with apprentices on-the-job by means of supervisors who were prepared for this specific responsibility.

In firms such as these the attempts to predict "success" from entry characteristics are less successful, not so much because of the weakness of the procedure but because of the effectiveness of the training. Although selection can be justified in excluding the least able and the most able, the one group because they are likely to find the skill demands too severe and the other because they are likely to find the skill demands not severe enough, further refinements

[1] Venables (1974).

to that selection probably need only take account of the unavoidable variations between firms and attempt to match applicant psychosocial characteristics to workplace characteristics.

It may be that in some golden age in the past it was worthwhile attempting to make a once-for-all selection so as to minimise the damage to employee and employer caused by the cycle in which "poor selection" leads to "poor performance" and in which the latter leads to "wastage." Now the consequences of wastage are much less severe.

Occupational Choice

There is a tendency amongst those concerned with careers guidance to encourage young people to start thinking about careers and jobs at an earlier age than hitherto. Careers work in schools is frequently begun with children of 14, and many are encouraged at that age to think in terms of what kind of job they would like to get. The evidence from our interviews with the apprentices and from the information about changing jobs suggests, however, that even after they had committed themselves to a four-year apprenticeship in a particular trade, they saw occupational choice as to some extent provisional or open to change. What seems to emerge is that the apprentices were not so much concerned about choice of a particular occupation which would be theirs for life, as with the securing of certain goals or ends, for which particular occupations would provide the means.

Even though many of the boys (particularly those in the engineering group) were, at the start, unclear about which trade they wished to enter, almost all were quite happy to settle for what they had got. The interviews suggest that this not only illustrates the general tendency for young people to be satisfied with the employment they have entered,[2] but is due in part also to the special aim of these boys to secure an apprenticeship of some sort. The question of what particular trade they entered was in many cases a lesser issue than the question of getting an apprenticeship of some kind.

Having secured an apprenticeship they did not necessarily regard themselves as likely to stay permanently in that particular trade or occupation. A number of them, especially among the motor apprentices, expected to change to another occupation later on, and many more, in both groups, were open to this possibility. Their present occupation did not necessarily represent their "choice" for life. Instead they were interested in certain goals or objectives,

[2] See especially Roberts (1974).

and were prepared to think of changing occupations if by doing so they could further their objectives. These included being able to do practical work involving a fairly high degree of skill from which they could get satisfaction, and earning a good wage in the future. Together with these went their desire to have the security of having a trade to fall back on. This was in part an end in itself—a sense of security would be important for them throughout life—and in part a means for achieving the other ends. Having completed an apprenticeship meant that, in search of satisfaction or money, they could change jobs or occupations and still be able to find a job in their own trade if necessary. In addition some had their eyes fixed on higher positions in the future and saw their apprenticeship as a road to this goal. Occupational choice, that is to say, was not something that was already done and settled. Their present occupations might turn out to be their work for life, but this need not necessarily be so. To some extent serving an apprenticeship was a way of ensuring that there could be more occupational choices in the future.

This raises an important point with regard to careers guidance and education. Much of this work is focussed upon the attempt to get young people first to understand themselves, their abilities, and their desires and needs, and then to compare these with the characteristics of various jobs or occupations. Yet an increasing number of people may be expected in the future to change their occupation, and our evidence suggests that even young people entering apprenticeships which involve a comparatively high degree of initial commitment to one occupation are open to the idea of occupational change in the future. This being so it may be important for careers education to concentrate less on explaining to young people the nature of particular occupations, and more on helping them to understand the various goals or objectives which people realise through their occupations, and to clarify for themselves what their own goals and objectives are. In other words, if careers education can help young people to appreciate what work is all about and what can and cannot be achieved through it, the question of what particular jobs are like and which jobs suit them best might be easier for them to discover and decide for themselves. It is being increasingly recognised (Roberts 1974; Allen 1976) that occupational "choices" made at school may not be choices at all since local openings may not exist in the chosen occupation. Careers education should provide not a means whereby young people make one occupational choice at the time of leaving school, but a groundwork

of thought and understanding about the nature of work, its rewards and its dissatisfactions, on the basis of which they can continue to make occupational choices in the future.

A further point needs to be made about careers guidance for boys who leave school with the intention of becoming motor mechanics. Many of our motor apprentices had been committed to this intention since before they left school. A number of them said they had never thought of anything else. They had become interested in working with motors and engines frequently as a result of their own experience of helping older friends or relatives with repair work. During their apprenticeship, however, a number of these lads became disillusioned and expected eventually to give up garage work. They retained their interest in cars and did not regret having served their apprenticeship, but they felt unwilling to think of this as their life's work. This suggests the danger of allowing boys to enter the motor repair trades without making them aware both of the real nature of much of garage work and also of alternatives which might suit them equally well. There is no evidence from our enquiries amongst both motor and engineering apprentices that boys who have on leaving school a clear commitment to one particular trade are more likely to be satisfied with it later on, nor that an initial lack of fixed intention is any long-term disadvantage. To allow boys to go uncritically or thoughtlessly into motor vehicle apprenticeships on the basis of childhood enthusiasm is to invite disappointment later on. This is not to suggest that young people should be discouraged from entering the motor trades, but that more attempts should be made to ensure that those who do so know what they are about. In general, and not only in the case of intending motor mechanics, occupational choices made at school ought to be challenged by the presentation of alternative, although perhaps less visible, possibilities.

Conclusions

In trying to build a bridge between the objective and illuminative sections of this report we have concentrated on problem areas which throw some doubt on the attempt to use an objective (or preordinate) approach. It is characteristic of such a research methodology that the preordinate evaluator acts on the assumption that there are valid and preconceived notions of success which can be determined under headings such as mastery, ability and attitudes. He conceptualises himself as one who intervenes, producing standardised behavioural objective statements, test items and questionnaire

items. Such an approach, however, depends on being able to state the important purposes of an educative process and on being confident of measuring how far these purposes are achieved. If successful, a preordinate evaluator gives more objectivity and reliability to the results, but in so doing tends to obscure the true nature of the process being observed and measured.

The attempt to use a wide variety of items of information in accounting for "success" in apprenticeship has indicated the variety of factors which contribute to a young person's progress through this process. The mere use of the term "success," however, also indicates some of the difficulties facing anyone who attempts to measure such a phenomenon since there seems to be a wide range of definitions for the term, each of these definitions liable to be associated with a different set of human characteristics and behaviours.

At the beginning of apprenticeship in modern times many young people are being trained "off-the-job" and it is therefore not surprising that there is a certain common set of predictors of "success" in performance terms and that ability (the usual school measure of "success") is a major contributor to this set. In the longer term, however, apprentices' experiences vary considerably according to industry and nature of employment and any attempt to predict "success" in performance terms over the whole of apprenticeship has to take account of these factors. In addition, individual differences tend to increase rather than diminish so that performance can only be measured successfully by reference to these differences.

Within the individual workplace "success" in non-performance terms has a definite meaning and, using a brief rating scheme, employers or their agents seem able to identify such success more precisely. Certainly there is a variation within types of employer, but within an industry and amongst employers of the same type, some agreement can be observed. Nevertheless, these abilities apply to very local situations (one firm in one industry or one industry in one location) and the agreements are at a very basic level.

At another level, "success" is often defined in terms of an apprentice's willingness to complete his "time" with his original employer. Differences here can be attributed to the employer's own attitudes to young people and to the way in which he or his workplace appeals to them. Equally important is the view the young person forms of the longer-term prospects offered by that job with that employer in that industry.

While reasons for changing employment in this way can be described, it has been less easy to measure the characteristics of change and almost impossible to identify, at the beginning of an apprenticeship, those least likely to complete it with their original employer. Especially in an industry—such as the motor trade—dominated by small employers and characterised by extreme variation between workplaces, it is extremely difficult to predict at four years' distance, how a young person will develop his skills, attitudes and motivations *vis-a-vis* his first employer. In larger firms, or in less individualistic industries, a clearer view of the future can be presented to a young person and some success at long-term prediction, using a talent-matching model, achieved.

By comparison with the first section of this book, the attempt to measure "success" has added little to our understanding of the apprenticeship process, but has indicated that small, clearly identifiable aspects of "success" can be measured, especially in local, controlled, situations. Furthermore, the view of the dynamic nature of the apprenticeship process presented in the first section, when contrasted with the more rigid perspective used in the second section, must reinforce the opinion that preordinate approaches should be reserved for such restricted situations, and not used wholesale in a complex area such as apprenticeship.

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APPENDIX A

SCOTTISH COUNCIL FOR RESEARCH IN EDUCATION

CASE STUDIES IN EDUCATION AND TRAINING

Questionnaire to First Year Apprentices

PART 1

1. Name .....
2. Home Address .....
3. Date of birth .....
4. Father's Occupation:
   Give his kind of work or trade (give detail—*eg*, not "engineer," but "fitter" or "turner" etc.):
   .....
5. Date of leaving school.....(month) .....(year).
6. Name of school.....
7. What year of secondary school were you in at the time of leaving school, 3rd or 4th? .....
8. If you sat O-grade examinations state what subjects you sat:
   .....
   .....
   and name the place and centre where you sat them:
   .....
9. Would you have liked to stay on longer at school? Yes or No?
   .....
   If yes, give the main reasons why you did not stay on
   .....
   .....
10. If you have had any other jobs before your present one, please state:

Kind of work	Approximate time held (in weeks or months)
.....	.....
.....	.....
.....	.....

11. When you were looking for a job (Please tick)
    were you interested only in an apprenticeship?
    were you ready to consider a job without an apprenticeship?
    did you consider a technician job?
    did you consider any other form of training? (say what)
    .....

12. Who influenced you most to apply for an apprenticeship? (Please tick)
    Parents
    Teachers
    Friends
    Youth Employment Office
    Others (say who) .....

13. Please state the main reasons (not more than two) why you wanted a trade.
    1. .....
    2. .....

14. Which trade did you most want to get into?
    .....

15. Did any work you did at school help you to decide that you would like to be an engineering apprentice? Yes or No.....
    If yes, state what kind of school work.....
    .....

16. Is there anything that you learned at school which you think will be of special *use* to you in your trade? Yes or No.....
    If yes, say what things.....
    .....

17. Apart from school, did you have any experience of engineering work before you started work? Yes or No.....
    If yes, say what kind of experience.....
    .....

18. Did you apply to any other firms for an engineering apprenticeship? Yes or No.....

19. Did you apply to any other firms for other kinds of apprenticeships? Yes or No.....
    If yes state
    how many firms you applied to.....
    what trades you applied for.....
    .....

o

20. Did you attend any Technical College or Further Education College before starting your apprenticeship. Yes or No.....
If yes,
what sort of course did you take?.....
for how many months did you attend?.....
was it useful to you in getting a job? Yes or No.....
was it useful in preparing you for your job? Yes or No.....
21. Did you know before you applied for an apprenticeship that you would have to attend a Technical College? Yes or No.....
22. If your apprenticeship involves spending some time in an off-the-job apprentice training centre,
did you know this before you applied? Yes or No.....
did you deliberately choose a firm which has a training centre? Yes or No.....
23. If your apprenticeship does *not* involve going to an off-the-job training centre,
did you know this before you applied? Yes or No.....
did you deliberately choose a firm which did not have a training centre? Yes or No.....
24. Here are three methods used in apprentice training:
A. off-the-job training in a training centre
B. one day a week at Technical College
C. on-the-job training in the workshops.
Please place these in an order according to how important you think they are for training a competent engineer (arrange the letters A, B, C after the numbers 1, 2, 3 below).
1 .....
2 .....
3 .....

PART II

Attitude Inventory

We would like you to tell us what you think about the statements listed below. Please indicate your opinion by putting one of the following five symbols in the brackets after each statement:

Strongly agree	SA
Agree	A
Undecided	U
Disagree	D
Strongly disagree	SD

1. Those who work hard at school get the best jobs. ( )
2. Thinking for yourself usually gets you into trouble. ( )
3. It is important for a craftsman to know something about other trades. ( )
4. The best thing about leaving school is getting away from teachers watching you all the time. ( )
5. The only important thing about a job is money. ( )
6. Many things I learned at school will be useful in later life. ( )
7. The methods of the old craftsman are always the best. ( )
8. At school teachers took an interest in me. ( )
9. No matter what job you do you can take pride in it. ( )
10. At school the practical subjects were best. ( )
11. In 20 years' time work will be very different from what it is today. ( )
12. The discipline at school was too strict. ( )
13. The only way to get on in life is to work hard. ( )
14. You learn a trade better on the job than in a training centre. ( )
15. Too many firms change things just for the sake of changing them. ( )
16. People work better when they are left on their own. ( )
17. I was made to work very hard at school. ( )
18. A skilled craftsman could be trained in not more than two years. ( )
19. Refusing to do anything but your own work is an important way of protecting jobs. ( )
20. Everyone is against you if you have long hair. ( )
21. A craftsman can take more pride in his work than other workers can. ( )
22. Apprentices have to spend too much time in classrooms. ( )
23. Most craftsmen will need to be re-trained in new skills during their working life. ( )
24. I had a good time at school. ( )
25. It is just by good luck that people get good jobs. ( )
26. It is fair to pay apprentices less than other boys because they are being taught a trade. ( )
27. The most important reason for learning a trade is in order to get a steady, secure job. ( )
28. Everyone tries to boss the apprentice about. ( )

29. Passing examinations is important if you want to get on. ( )
30. The last years at school were a waste of time. ( )
31. It is better to know a lot about one job than a little about many jobs. ( )
32. It is more important to keep in with your boss than with your mates. ( )
33. People who are ambitious usually have a happy life. ( )
34. Everyone should stay on at school as long as he can. ( )
35. You can expect to lose a lot of friends if you become a foreman. ( )
36. Teachers at school are only interested in the clever children. ( )
37. It's who you know not what you know that matters. ( )
38. Apprentices should have their own trade union. ( )
39. Nowadays a skilled man needs to know a lot more than before. ( )
40. People are really happier in a place with strict discipline. ( )

PART III

Motivation Inventory

You will see on the next page a number of sentences suggesting feelings you may have about your future life as an apprentice and a craftsman. They are arranged in four sections. Please start with Section 1 and do three things:

1. First look at the statements in this section and decide whether each is important or unimportant for you. If you feel it is important put an X in column B. If you feel it is not very important put an X in column A. Please make sure you put an X for every sentence.
2. Before going on to Section 2, look again at the sentences in section 1 which have an X in column B, and decide if it is *very* important or not. If you think it is *very* important put an X in column C.
3. Now look again at those sentences in section 1 which have an X in column C, and decide which *one* of them is the *most* important, and put an X against that one in column D.

After you have done that with the sentences in section 1 go on to the other sections in turn and do the same with them.

PART III

Section 1

	Not very important	Important	*Very* important	Most important
	A	B	C	D
1. My work should give me something to do all the time.				
2. My job should be easy and not make me work too hard.				
3. My work should make me feel I am being really useful.				
4. My job should give me good chances of promotion.				
5. My work should not be too dirty.				
6. My work should give me a lot of responsibility.				
7. I should be able to take pride in my work.				
8. At my work I should have good breaks and spells off.				
9. My work should be very well paid.				
10. I should not have to work long hours.				
11. My work should give me a chance to be in charge of others.				
12. My work should be near my home.				
13. My work should be interesting.				
14. My work should make me feel important.				

(Don't start Section 2 until you have completed all three things to do in Section 1).

PART III

Section 2

	Not very important A	Important B	*Very* important C	Most important D
15. My work should make me use my own judgment.				
16. My work should make me use my strength.				
17. At my work I should have opportunities to learn new things.				
18. At my work someone should do the thinking for me.				
19. My work should require a lot of skill.				
20. I should learn all about my work at my place of work.				
21. At my work I should have a chance to use my own abilities.				
22. As an apprentice I should not be doing a skilled man's work.				
23. My work should give me a good training for the future.				

(Don't start Section 3 until you have completed all three things to do in Section 2).

PART III

Section 3

	Not very important A	Important B	*Very* important C	Most important D
24. My work should be amongst pleasant friendly people.				
25. At my work I should not be too closely supervised.				
26. My work should be in an efficient organisation.				
27. At my work I should have a good and helpful boss.				
28. I should be allowed to do my work without interference from customers.				
29. My work should be in a clean and tidy place.				
30. In my job I should be able to work regularly with other people.				
31. My work should be in a well-disciplined organisation.				
32. My work should be in a firm with a good reputation.				

(Don't start Section 4 until you have completed all three things to do in Section 3).

PART III

Section 4

	Not very important	Important	*Very* important	Most important
	A	B	C	D
33. At my work I should have a variety of things to do.				
34. My job should be a steady and secure one.				
35. At my work there should always be new machinery and new methods to learn.				
36. As an apprentice I should work with the one tradesman all the time.				
37. I should be able to change jobs quite a lot.				
38. I should not be expected to do too many different things at my work.				
39. My work should give me a chance to travel around.				
40. I should be able to concentrate on learning one part of my job at a time.				
41. I should be able to stay in the same trade for the rest of my life.				

APPENDIX B

WORKSHOP INVENTORY

During visits to employers' premises, information was collected, in a reasonably informal manner, on the topics listed below. The responses were subsequently coded so as to form scales on each variable and this data was then assumed to be of an interval type.

I. *Information requested from employers of engineering apprentices*

A. *The Firm*

1. What type of work is done by this firm?
2. Is it an independent company or part of a larger group?
3. What is the approximate number of employees?
4. What are the approximate numbers of skilled men in various trades?
5. What are the numbers of apprentices in various trades and stages of apprenticeship?
6. Is there a bonus or other incentive scheme?
7. Are there likely to be changes in type of work or technology in the next few years affecting the work of skilled men?

B *Recruitment of Apprentices*

8. Why does the firm take on apprentices?
9. How does the firm view apprentices and apprenticeship?
10. How far do apprentices remain with the firm upon completing their apprenticeship?
11. How does the firm secure applications for apprenticeships (advertisement, Careers Office, informal means)?
12. How are apprentices selected for employment?
13. What types of boys does the firm look for (*eg*, all for the ordinary work of the trade, or are some required for more advanced work later on, etc.)?
14. Are there opportunities for eventual promotion in the company for boys of ability?

C *Training of Apprentices*

15. What is the firm's attitude to off-the-job training?
16. With whom do the apprentices work on the job (with one journeyman or a group, etc.)?
17. Who is responsible for explaining the work of the trade to apprentices?
18. Is it possible to plan a systematic variety of experience for apprentices on the job?
19. Does the firm's work provide apprentices with experience of all aspects of their trade?
20. How far is it possible to recruit skilled men from other firms?
21. Does the firm come under the levy/grant scheme of a Training Board, and train to its recommendations?

D *Further Education*

22. Why does the firm give day release to apprentices?
23. Do the college courses fit in with the company's needs?
24. How much direct contact does the company have with the Technical College(s)?
25. Does the company ask for boys to be put on any particular course(s) at college?
26. Are apprentices encouraged to continue attending college after the end of their third year?
27. Does passing or failing college examinations lead to any reward or penalty, or any change in grade of employment?
28. Does success at college usually indicate that a boy will make a good tradesman?

II *Information requested from employers of motor vehicle apprentices*

A *The Firm*

1. What is the approximate number of mechanics?
2. What are the approximate numbers of skilled men in other trades?
3. What are the numbers of apprentices in various trades and stages of apprenticeship?
4. What is the number of supervisory staff below service manager?
5. How far is it difficult to retain trained men?
6. What is the nature of the work carried out by the firm?
7. How difficult is it to recruit workers?

8. Are there likely to be changes in type of work or technology in the next few years affecting the work of skilled men?
9. Is there a bonus or other incentive scheme?
10. Is overtime worked by the men?
11. Is overtime worked by 1st/2nd year apprentices?

B *Recruitment of Apprentices*

12. How are the skill demands of the trade changing?
13. What sort of boy is required to meet these demands?
14. Are there opportunities for eventual promotion in the company for boys of ability?
15. How difficult is it to recruit the boys you want?

C *Education and Training of Apprentices*

16. Is it possible to plan a systematic variety of experience for apprentices on the job?
17. What is the value of the theoretical knowledge imparted at college?
18. Do the college courses fit in with the company's needs?

D *Size and Scope of Firm*

19. Is it an independent company or part of a larger group?
20. What is the combined nature of its labour force and type of work?

APPENDIX C

PRINCIPAL-COMPONENTS ANALYSES

In the following tables the variables included in each scale are those whose loading on the composite in question exceeded 0·3. In the few cases where an item loaded to that extent on more than one composite it was counted in neither. Each composite variable is therefore made up only of those items which loaded significantly and uniquely on that composite.

TABLE 1

ATTITUDE COMPOSITES

Group	Scale Number	% of variance	Items* included	Title
Engineering	1	14	2, 5, 12, 19, 20, 22, 25, 28	Instrumental Attitude
	2	10	13, 27, 29, 39	Hard Work Attitude
	3	8	6, 8, 24, 30, 36	Education Attitude
	4	7	1, 9, 33	Pride-in-the-job Attitude
Motor Vehicle	1	11	20, 35, 36, 37	Attitude to Authority
	2	9	13, 32, 33, 40	Hard Work Attitude
	3	7	16, 17, 19, 28	Self-sufficient Attitude
	4	7	10, 24, 31, 34	Education Attitude

* These items are detailed in Appendix A.

TABLE 2
MOTIVATION COMPOSITES

Group	Scale Number	% of variance	Items* included	Title
Engineering	1	8	4, 23, 26, 31, 34	Opportunity Motivation
	2	6	3, 6, 11, 14, 17, 32	Promotion Motivation
	3	6	2, 5, 9, 10, 12, 34	Working Conditions Motivation
	4	5	1, 15, 22, 25	Quality of Supervision Motivation
	5	4	20, 28	Autonomy Motivation
Motor Vehicle	1	7	8, 9, 10, 12, 22, 24	Working Conditions Motivation
	2	6	26, 31, 33	Nature of Workplace Motivation
	3	5	3, 17, 24, 33	Opportunity Motivation
	4	5	15, 16, 19, 21, 23	Skill Motivation
	5	5	4, 6, 11, 14, 39	Responsibility Motivation

* These items are detailed in Appendix A.

TABLE 3
WORKSHOP COMPOSITES

Group	Scale Number	% of variance	Items* included	Title
Engineering	1	27	2, 4, 5, 15, 16, 18, 22	Size and amount of planning
	2	14	3, 6, 8, 26, 27	Valuation of skilled work
	3	12	11, 12, 13	Care taken over recruitment
	4	10	7, 14, 17, 20	Outward-looking nature
Motor Vehicle	1	28	1, 2, 3, 4, 9, 14, 16, 19	Size
	2	13	5, 12, 15, 18	Valuation of skill and training
	3	12	7, 17	Recruitment sources

* These items are detailed in Appendix B.

APPENDIX D

COMPETENCE IN THE WORKSHOP

We would be grateful if you would help with a research project by giving us your assessment of the work and ability of the above-named apprentice.

For each of the six items below please put a circle around one number from 1 (most favourable) to 5 (least favourable).

	favourable				unfavourable
1. *Practical work:* Is he good with his hands?	1	2	3	4	5
2. *Job-knowledge:* Does he *understand* his work well?	1	2	3	4	5
3. *Adaptability:* Can he do a variety of types of work?	1	2	3	4	5
4. *Attitude to work:* Does he take pride in it?	1	2	3	4	5
5. *Attitude to authority:* Is he loyal to the firm?	1	2	3	4	5
6. *Potential:* Is he likely to rise to a higher job in the future?	1	2	3	4	5

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Every year thousands of young people in Great Britain start the process of 'getting a trade' by entering a craft apprenticeship. Despite recent changes, the ancient institution of apprenticeship still remains the principal means of learning the skills needed in industry. This book presents a study of young people serving their apprenticeship in the engineering and motor repair trades. It consists of two parts.

The first part, which describes the goals and attitudes of the apprentices themselves and their views of the training and education they were receiving, offers a lively account, often using the apprentices' own words, of what it is like to be an apprentice today. From this account there is developed a study of some of the issues and problems of the apprenticeship system today, drawing on the views and perspectives of employers, training instructors, college lecturers, and officials of Industrial Training Boards, trade unions, etc.

The second part is a study of success in apprenticeship, and sets out to provide a composite view of the industrial and educational factors which should be of assistance in predicting it. The results reveal the very diverse nature of the industrial training and further education of apprentices, and draw attention in particular to the importance of the place of work in the making of a successful apprentice.

The difficulties currently being experienced by many young people in finding employment gives this book added topicality, though its relevance is by no means ephemeral. It should interest all who feel concern about the employment, training, and further education of young people when they leave school.

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